1859 FIFTY-EIGHTH YEAR 1917

Chemical Lib.
MAR 26 1917
UNIV. OF MICH. LIBRARY

AMERICAN
GAS ENGINEERING JOURNAL
FORMERLY
AMERICAN GAS LIGHT JOURNAL

VOL. CVI., NO. 13
WHOLE No. 3081

NEW YORK, SATURDAY, MARCH 24, 1917

Subscription $3 per year
$4 Canada $5 Foreign

Tangible Proof

Facts—For some months past requests have been coming into the office for recent back numbers of the AMERICAN GAS ENGINEERING JOURNAL. Every letter came from an individual whose company was a subscriber.

Cause—The educational and business value of the articles appearing in the AMERICAN GAS ENGINEERING JOURNAL was the primary cause for the requests. The secondary cause was that these individuals had been reading the company's copy and realized the value of having their *own* copy to clip and save as they liked.

Effect—With this deluge of orders for extra copies there could be only one effect—Disappointment—Only an explanation where the request was for a copy.

Remedy—Have the JOURNAL sent to your Home every week. The cost, $3.00 per year, is too small to hold you back when balanced against the gain.

AMERICAN GAS LIGHT JOURNAL, INC.
Publishers

INDEX TO CONTENTS, PAGE 300 ADVERTISERS' INDEX, PAGE 18

PARSONS

TRENCH EXCAVATORS

Get Acquainted With These 1917 Models

Any gas man requiring an excavator especially designed for light trenching can find the machine he wants among the four sizes of the new type Parsons Trench Excavator.

These are short wheel base machines and very light in weight compared with other makes of machines that will dig the same widths of trench. Extra large shaftings and gears give strength equal to other machines of much greater weight built to handle same range of work.

Choose the size machine that interests you, from the table below, and write for complete specifications.

	Widths of Cut	Depth of Cut	Engine
Model 18.....	9″-12″-15″-18″	To 6 ft.	18 H.P.
Model 24.....	12″-15″-18″-24″	To 10 ft.	28 H.P.
Model 36.....	18″-24″-30″-36″	To 15 ft.	45 H.P.
Model 48.....	24″ to 48″	To 18 ft.	70 H.P.

Write us today. We will send complete information on these new machines and you will not be obligated in any way. Parsons Back Filler Catalog also mailed on request.

The Parsons Company

616 SIXTH ST., NEWTON, IOWA

Eastern Sales Office: 18 West 34th St., New York

Cut Shows Model 24—Weight Approximately 7½ Tons

AMERICAN
GAS ENGINEERING JOURNAL

FORMERLY THE AMERICAN GAS LIGHT JOURNAL

Vol. CVI, No. 13 NEW YORK, MARCH 24, 1917 Whole No. 3081

Historic Church in Newport, R. I., Uses Gas for Lighting, Not Because of Economy, But Because it Gives the Best Service

Publicity Value Attached Considerable Since Edifice is Visited Annually by Many from Throughout the Country—Thorough Canvass by Gas Company of All Churches in Its Territory with View to Improving Gas Lighting in Use Would Prove Profitable

The selling of gas to churches or any other institutions where people gather in more or less large groups results not only in revenue to the gas company but also in an advertisement of the service rendered by the gas company. For this reason it is necessary first of all to see to it that all churches receive the very best service that the company can render.

The most obvious method and the method by which all churches can use gas is, of course, lighting. Most of the church buildings that have been standing for 25 or more years are already piped for gas. Some of them have never used anything else for lighting.

CHURCH WHICH BOASTS A PEW IN WHICH GEORGE WASHINGTON ATTENDED SERVICES IS LIGHTED BY GAS

NEW CHURCH AT PROVIDENCE USES GAS FOR VARIOUS PURPOSES

In fact it is still possible to discover churches which are even now lighted with open flame gas burners. It is evident that it would pay the gas companies selling gas to these churches to at least make an attempt to replace these open flame burners with modern incandescent burners. Unless this is done there is always danger that the installation will be changed to electricity.

That it is possible to give perfectly satisfactory service with modern gas lighting equipment has been demonstrated by the fact that in a number of cases electric church lighting has been displaced by gas lighting. It is cheaper and more satisfactory, however, to make the gas lighting give satisfaction before electric lighting is installed.

A thorough canvass of all the churches in town with the end in view of improving the gas lighting in use would certainly prove very profitable to any gas company.

Among the churches in the country that are still using gas lighting and finding it perfectly satisfactory are

several historic edifices visited annually by many tourists. One of these is the oldest Episcopal church in Newport, R. I.

This is one of the oldest church buildings in the country and was attended by George Washington when he was in Newport.

There is still preserved in the church the pew he is supposed to have occupied, and every year many people visit it, sit in his pew and look over the church, including the lighting equipment.

Until recently this church was lighted with open flame burners which made the lighting equipment seem as old as the edifice. Now, however, it has an equipment of modern C. E-Z incandescent gas burners and there is every reason to believe that this equipment will prove so satisfactory that gas lighting will be the only form of lighting which will be considered for a great many years.

Another Rhoode Island church that is still using gas lighting is the First Congregational Unitarian Church at the corner of Benefit and Benevolent Streets in Providence. This church is within two blocks of Brown University and is located on the exclusive East Side.

WATER HEATER WHICH MAY BE USED FOR A NUMBER OF PURPOSES

This church like the Newport church is not using gas lighting to save money but because the best results are obtained from gas lighting.

The present installation consists of a few open flame burners and 35 C. E-Z incandescent gas lights. Both of these churches would have no difficulty at all in raising the funds necessary to install electric lighting. They are examples where gas has won out on merit and not on cost.

Cooking and Water Heating a Big Field

Another use for gas in churches that is proving more and more attractive is for cooking and water heating. Nearly every modern church is now equipped with a kitchen. This kitchen is located either in the main church building or in an adjoining building.

The form of baptism in churches of certain denominations necessitates a considerable quantity of heated water. The automatic gas water heater provides a most efficient means of obtaining this supply.

The Central Baptist Church at Providence, R. I., is just completing a new building in which has been installed modern domestic gas appliances which are bound to result in very favorable publicity for gas service. In the kitchen there is an eight-burner, four-oven range and along side it a four-burner double oven range. This is strictly an all gas kitchen. There is no coal range and no plans have been made for installing a coal range in the building.

In the boiler room there is an automatic gas water heater. This supplies hot water to the kitchen and is also connected to the baptistry.

COOKING EQUIPMENT IN CENTRAL BAPTIST CHURCH, PROVIDENCE, R. I.

These three uses of gas in churches as has already been shown are applicable to the most prosperous churches the country over. In many sections of the country and in all sections where the church is used only one or two days a week house heating can be added to these other uses.

Securing of High Type Commercial Engineer a Process of Elimination

The old school salesman has passed. The salesman of to-day must know his subject, declared George P. Baldwin, district manager of the General Electric Company, in a recent address. If he does not have a deep knowledge of engineering principles and their application as well, he may try to get business by means of guessed-at statements; or should he not yield to this temptation, he will find himself often in the position where he must confess his ignorance in the presence of the prospective customer and offer to send to the home office for an engineer. The doctrine of the survival of the fittest is rapidly eliminating this type. To-day the great manufacturers realize that the man to get the business should really be an engineer and be able to intelligently discuss the topics under consideration in all their phases. It has been proven that the old method was an economic waste,—the new method is modern business.

But the securing of this high type of commercial engineer involves a process of elimination: Experience has shown that out of one hundred engineers of high order, by no means all of them develop sound commercial judgment and are capable of quick, accurate business decisions. And of those who have this accomplishment, not all of them possess the requisite knowledge of human nature, the tact, the ability to form acquaintanceships, and those qualities which are summed up in the word " personality." If exact figures were produced, it would be surprising how few good engineers possess these first two requisites for a commercial career,—judgment and personality.

How the Manager of a Small Gas Company Can Develop His Industrial Gas Field

Bruno Rahn Defines Ideal Industrial Gas Salesman—Work Requires Man of Nerve and Courage Backed Up by the Support of His Manager and Sure of the Co-operation of His Fellow-Workers

On the part of the smaller companies, there seems to have existed a certain reluctance to enter the industrial fuel field in an energetic and determined manner. This indecision was due probably not so much to a want of recognition of the opportunities presented, as to the lack of ways and means of commercially developing this business without incurring too great a development expense. Today, however, this condition is changed, and every gas manager not only recognizes the possibilities of industrial gas, but is keen to launch a determined campaign to land this business for his concern, be it large or small, and it is the object of this paper to attempt to aid him in this purpose by trying to point out the lines of procedure along which he can develop his industrial gas field best, declared Bruno Rahn, industrial engineer of the Milwaukee Gas Light Company, of Milwaukee, Wis., in a paper presented at the annual convention of the Wisconsin Gas Association, held last week in that city.

Type of Man Who Can Sell Without Being a Salesman

The introduction of gas fuel into the manufacturing field requires men who possess technical knowledge combined with good selling ability and above all good judgment and common sense. This is pre-eminently the day for salesmen to acquire technical knowledge, and for technical men to become salesmen.

A survey of the field will soon convince the small company manager that the supply of men combining the above named qualities is decidedly limited, and unless he is fortunate in securing an experienced industrial man, it is advisable as the first step towards the realization of his industrial business development plan, to select a man preferably from his existing organization and to train and qualify him for this purpose.

It is in my opinion a fundamental requisite that this man should possess technical training along mechanical lines, should be versed in elementary chemistry and possess a knowledge of the chemistry of fuels.

As he is to become primarily a salesman of gas in the widest sense of the term, he must know his commodity. He should be familiar with the processes that enter into the manufacture of gas, and its by-products, the principles of gas purification and holder storage.

He must be able to answer intelligently questions regarding distribution. This requires a knowledge of the distribution system, both as to mains and services, as to high pressure and low pressure systems, as to the purposes of each, the functions of governors and pressure controls and the like.

A knowledge of the workings and methods of the fitting shop is desirable.

Your industrial man should know how a meter or a bank of meters is to be connected up properly. He should be familiar with the internal construction of a meter, how a meter is tested for correct registration, where to place a meter on the consumer's premises and where not, how to read a meter, how to select a meter as to proper capacity.

He should know how to locate a service with respect to the consumer's premises, so as to avoid frost troubles and traps. He should be able to explain to the consumer what is meant by the service proper and by the service extension, as to the proper sizing of the service, as to the proper installation of house piping, the location of shut-offs, the proper pitching of pipes so as to avoid stoppages from condensation and the like.

In short, your industrial man should know the technical sides of the gas business to begin with. Remember, gas is the merchandise he is selling, in fact more than this he is selling efficient gas service delivered on the consumer's premises. A man equipped with a complete knowledge of his commodity can talk the same in clear and concise terms. He inspires confidence and he can sell, without being a born salesman. He can give adequate and convincing reasons for such recommendations as he makes, he is not a parrot.

A man educated along these lines is now in a position to differentiate, to specialize. He is now in a position to take up industrial gas engineering and salesmanship.

Enthusiasm a Necessity

A great authority on salesmanship has said: A man might have honesty, health, ability, initiative, knowledge of the business, tact, sincerity, industry, and the other qualities of salesmanship, and without enthusiasm he would only be a statue.

Enthusiasm is the white heat that fuses these qualities into one effective mass. The man who is enthusiastic has an intelligent, vital interest in what he is doing. He talks as if he meant what he said, because he does mean it. Enthusiasm is the force that grips the attention of the customer, that impresses him with the salesman's sincerity. Enthusiasm can be created. Enthusiasm is born from the realization of one's opportunities in his particular line of endeavor.

It is now up to you, Mr. Manager, to create in your industrial man enthusiasm for his work. Show him what the industrial business means to you, that the industrial users of gas are almost always large consumers, using considerable gas extended over a period of long hours. Point out to him how this demand coming between peaks, without interference with the domestic demand, will aid you to operate your plant nearer to its full capacity, how you will be able to take care of this increased output with your present manufacturing organization, how the extension of service on existing mains for which the investment has already been made, is a most desirable business, especially when the demand comes between peaks. Show him that the industrial business under normal conditions is a twelve months a year business and that the office expense for rendering and collecting a bill for a 1000 cu. ft. monthly consumption is not any less than for one which is made out for twenty times this amount.

Then let him go out and familiarize himself with the industrial gas field in your town, but not for selling purposes as yet. Give him a letter of introduction to managers of business houses and supply him with a business card. Direct him to find out all he can about the methods of manufacture in the various establish-

ments and to pay particular attention to processes which require heat in one form or another and the kind of fuel that is being used to supply the heat.

Compiling an Intelligent List of Prospects

Require a systematic set of notes from which an intelligent list of prospects can be compiled. This list may then be classified into prospects affording immediate possibilities and such as might involve certain development work. An investigation of this kind is of considerable value in many ways both to the industrial man and the management. The former, acting as an investigator, has an excellent opportunity to become acquainted with the business locations and lines of manufacture. Although he will be able to recognize at once prospects for industrial gas extension, he will also realize the importance of his becoming educated in the other man's business, and the fact that upon this knowledge hinges his ability to either recommend a suitable appliance for the operation in question or to suggest that a special appliance must be developed to suit the case and how this problem can best be approached. The manager, through an investigation of this kind, will have at hand data, which by proper analysis, will afford valuable information such as:

1. An estimate of total possible increase in gas sales.
2. Increase in sales to be derived from service extension on existing mains of adequate capacity.
3. Information which will be of help in properly planning new main extensions.
4. Data which will be of help in the proper consideration of gas rates.
5. Whether it will pay to send your industrial man on a trip of inspection to some of the larger industrial centers to obtain methods of handling special business offered, in order to expedite matters.
6. Whether outside expert help would be of immediate assistance and should be engaged.

Industrial sales problems can be subdivided into three general heads: Such problems which can be solved by installing a standard appliance to suit the particular purpose at hand; those which involve the reconstruction of existing appliances to suit them for gas fuel, and those which necessitate the design and construction of a new appliance, special grouping of burners or the like.

Typical examples of the first class are such as the sale and installation of gas soldering iron heaters, soft metal melters, candy boiling furnaces, etc.

The changing over to gas of a set of coffee roasters formerly heated with coal or coke would be an example illustrating class 2. The design and construction of a burner for heating inside fired brick bake ovens might serve as an example of class 3.

Matter of Supply at Burner

A pre-requisite of any successful industrial gas installation is sufficient gas supply at the appliance. Assuming the gas main in the street to be of sufficient capacity, an examination of the service, meter and house pipe capacities should therefore be made.

In recommending house pipe or service changes, future extensions or additional installations should be kept in mind. The cost of such piping should be figured separately and embodied in the sales contract. The sales contract should be in writing to avoid misunderstandings. It is sometimes wise to leave the housepiping installation optional with the customer, but the right of supervision should be insisted upon.

The industrial man must be familiar with existing building and fire underwriter's regulations regarding sub-bases of appliances, proper installation of vent pipes and the like. This applies also to factory laws.

In order to successfully handle problems referred to under class 1, mentioned above, a familiarity with appliances available on the market is essential. It becomes necessary to get in touch with appliance manufacturers and obtain catalogues and price lists.

Though experience is the best teacher, much can be learned by study and from the experience of others as to the proper placing, installing and operating such appliances.

You have probably all noticed that the mere sale of an industrial appliance is rarely sufficient. You must make the appliance stick.

As a salesman you have attracted your customer's attention, you have convinced him of the advantages to be derived from using gas.

He believes that you can obtain an accurate heat regulation. The cleanliness and convenience of the gas operation is apparent to him. He understands that you can give him a speedy heat, thus save time. He may see a labor saving.

You have convinced him that a comparison of fuel costs alone is not a proper criterion, but you must go several steps farther. You must be in a position to practically demonstrate the operation of the appliance, and you must take time to teach your customer the same.

An installation must be followed up and watched carefully until the customer has proved to himself every point you have made to him, until several gas bills have been paid without serious protest.

A Successful Installation the Best Sales Argument

This conscientiously following up of an industrial gas installation, and carefully nursing it along over the rough spots, spells the success of an installation, and at the same time is of great educational value. A successful installation is the best advertiser, and the best sales argument with the next prospect. It pays to have the installation photographed and to write a description of it, gathering data regarding it, and to use this in sales work in preference to catalogue pictures. The more such photographs of local installations you can show up, the easier it will be to land the remaining business and to interest customers to permit the solution of problems referred to under classes 2 and 3.

When such a prospect presents itself, a careful study should be made of all the conditions which have any bearing on the problem at hand, and if the conclusions are that gas has a fighting chance of success, it is wise to propose a trial installation, with the understanding that if this is successful that the customer must reimburse the company either in full or in part. A trial even though unsuccessful is of great educational value.

Industrial Department Must Have Co-operation of Other Branches of Organization

In most cases, the actual practical demonstration will bring out such facts as improved quality of work, labor saving, increased output, the value of no smoke and ashes, saving in fuel storage room, absolute heat control, and the readiness to serve feature. The proposal of a trial installation better than words will prove to the customer that the company has confidence of success and in most cases will land the business.

In conclusion permit me to point out to you one more factor which is of the utmost importance to your in-

dustrial gas work. Your industrial department must enjoy the unstinted and generous co-operation of every branch of your organization. There should be no room for skepticism or prejudice.

Enough of this will have to be overcome on the outside. Nothing will be accomplished if this work is hampered with iron-clad rules and regulations, and red-tape.

Give the man whom you have selected for this work some headway, permit him to mix freely with the business element of your town, provide him with trade journals and reference books, help him to obtain information outside of your town if need be and again remember that this branch of your work will have to be carried on among the most critical and most exacting business circles of your town, that this work requires a man with nerve and courage backed up by the support of his manager and sure of the co-operation of his fellow workers.

Results Attained by Using Saline Solution for Freeze-ups as Good as Those with Alcohol

W. F. Clausen Describes Experiences in Adopting Method in Use at Minneapolis on a Smaller Scale at Winona, Minn.

Owing to the ever-increasing cost of alcohol that we have been using for freeze-ups, I inquired of several gas companies if any of them were using a substitute for the purpose, explained W. F. Clausen, of the Winona, Minn., gas plant in a paper presented at the annual meeting of the Wisconsin Gas Association, held recently at Milwaukee. Mr. Shepard of the Minneapolis Gas Company, stated that they had been using a saline solution for the last fifteen years that was giving them excellent results and would use it in preference to alcohol at the same price.

Saline solution had been used by a number of companies for the purpose but its use was abandoned because the solution was improperly prepared. At Minneapolis they have adopted the following system of preparation:

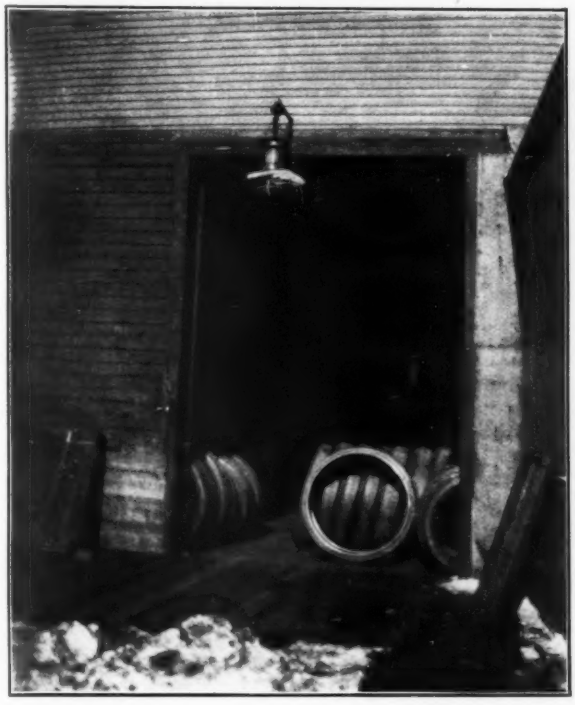
The mixing vat, which contains about 400 gal. of water, is placed on the third floor of their building. In this vat the salt is mixed with the water, about 22 per cent. by weight. This mixture is thoroughly stirred and a constant air jet keeps it agitated all the time. This is done to make the solution as near being a fixed product as possible.

The solution is then piped to a smaller tank for expansion purposes, and feeds the 40-gal. tank in which it is heated by a Humphrey tank heater to about 180 deg. and the complaint men when they go out on an order, fill an ordinary two-gallon can and it is used as hot as possible. The solution remains hot enough to use for several hours and a very little of it will take care of ordinary complaints.

We have adopted the system at Winona but not on quite such an elaborate scale. We placed a barrel which contains about 50 gal. on the first floor, which we use both as the mixing and also the expansion tank. This we have tapped about 10 in. from the bottom so as not to get a settling mixture in the tank that we have placed in the basement for the heating of the same. We have used this system all of the past winter and the results attained have been as good as with the use of alcohol.

The question of after-results from its use has been carefully considered and we do not believe that it will have a deteriorating effect on the mains or services. Mr. Shepard is convinced that the salt will not oxidize the iron on the inside of the mains as they have had occasion to renew some small services on which it had been used and also by tests and observation the results did not prove harmful.

In a cooling system using salt for fifteen years in a plant in this city there was no pitting of the pipe on the inside. The possibility of the salt condensing in the main, before the water reached the drip, and stopping the flow of gas we do not consider serious, as experience would not show that such is the case.



INSTALLATION OF GAS ARCS EXPOSED TO SEVERE WEATHER CONDITIONS HAS GIVEN YEARS OF SATISFACTORY SERVICE

Sixty Five-Mantle Gas Arcs Light Steamship Docks

Have Given Many Years of Satisfactory Service—Installation Constantly Being Added To

The fact that gas lighting is worthy of very serious consideration where good, safe and reliable industrial lighting is required is being demonstrated by a great many installations. Many of these have been used for so many years and have become such fixed institutions that the gas men in those cities have almost forgotten that they exist.

An installation that has given years of satisfactory service is that at the docks of the Merchants & Miners Company at Providence, R. I. Many years ago the Welsbach Company made an installation of outdoor gas arcs here. This proved so satisfactory that lamps were added from time to time until there are now in use sixty 5-mantle inverted outdoor gas arcs. As time goes on more lamps will undoubtedly be added until the lighting is exclusively gas.

When Continuity of Service is at Stake Matter of Expense Cannot Be Given Too Much Weight

F. L. Cross, in Presidential Address Before Wisconsin Gas Association, Advocates Building Up Coal Reserve During Summer to Guard Against Adverse Conditions Many Companies Worked Under During Past Winter

We have during the preceding twelve months faced and are still facing economic problems which have had no precedent, declared F. L. Cross, vice-president and general manager of the Madison Gas & Electric Company, of Madison, Wis., and retiring president of the Wisconsin Gas Association, in his presidential address before the association at its annual convention, held last week at Milwaukee. The public mind, the public environment and the public demands are changing at an accelerated speed concurrent with the change in economic conditions throughout the country. The advancement and protection of our industry requires intelligent consideration of the general trend of commercial and political activity as well as of the specific details of local problems.

Immediate Problems of the Gas Manager

Concerning the immediate problems of the gas manager those relating to the present abnormal cost of fuel and materials are perhaps the most imminent. That such prices have already wrought havoc with the net earnings is a fact we all know too well. Should this abnormality prevail for an indefinite period many readjustments in operation and in rates must undoubtedly be made. For the present should a utility live from "hand to mouth" as it were taking care only of their daily needs and awaiting future developments for a guide, or should they assume that the present conditions will prevail over a period of years and make their plans accordingly? The wisest sage would hardly have the temerity to answer this question with assurance but nevertheless a full discussion of the facts cannot but result in material value to utility operators.

Closely connected with the price of raw materials is the failure of the common carriers to provide adequate transportation facilities. Regardless of where lies the blame it remains a fact that some of the utilities in the country were compelled to shut down and a great number even in Wisconsin were forced perilously close to such an alternative. Through the instigation of the executive committee of your association telegrams were sent by a large number of the managers of utilities and also the mayors of their respective cities in Wisconsin to the Interstate Commerce Commission requesting discrimination in favor of public service companies. Also the problem was laid before the State Railroad Commission who rendered valuable aid in connection with interstate traffic.

The existence of such extreme conditions during the past winter warrant the most careful consideration relative to the building up of fuel reserves during the coming summer in order that a similar condition may be provided for should same again prevail. Granted the present prices for fuel are extreme, but the absolutely essential requirement of any utility is the maintenance of reliable service and expense cannot be given too much weight when continuity of service is at stake.

Compensation of Salaried Employees

Another problem of equally great importance is that of labor and wages. In many of our larger communities laboring men and skilled mechanics are almost impossible to obtain at any price. Owing to such scarcity competition frequently ensues between the contractors, the city and the utilities for the services of such men as are available resulting in the payment of excessive wages without increasing the total amount of work accomplished. These conditions are accentuated by the continuous demands of working men for shorter hours.

Such abnormal remuneration of labor largely foreign in make-up cannot help but react in a measure of perhaps justifiable dissatisfaction among the clerks, office force and other salaried employees of the organization. I would recommend that the attention of the association be directed towards this as one of the many problems to which they must give thought during the coming year.

The question of taxation, always with us, now looms up in more serious proportions than ever. Utilities freely admit their moral and legal obligation and are united in their willingness to pay their just share of the expenses of our great commonwealth. However, the procedure in obtaining a just apportionment is by no means standardized and public service companies are not satisfied that the diversified methods now operative in this state result in equitable taxation, more especially in respect to gas and electric utilities as compared with other real and personal property. The trend of political sentiment towards increased state income taxes coupled with the probability of largely increasing Federal taxes is a factor which must also be considered in our estimates for the future.

Utility Business Not Free from Industrial Hazards

In general, it is most important to impress upon our minds and those of the public at this time that the above conditions, abnormal though they may be considered, present a concrete example of the hazards of our industry and as such, should be given material weight in our plans for the future. Furthermore, we must exert every effort to so present these facts before commissions and other regulatory bodies that a due appreciation of their vital importance in rate revision may be effected. Government regulation in interfering with the destinies of utility service has in many cases belittled or ignored entirely the hazards and inherent uncertainties which confront capital contemplating investment in such securities.

I recommend the attention of this association to the address to be given by a representative of the University of Wisconsin. It would seem that we have perhaps been far too dilatory in availing ourselves of this great potential power in the development of our industry. Some of us know from personal experience the valuable assistance that gas utilities in other states are receiving from their state universities. We would most sincerely recommend to this association that definite steps be taken to provide for a gas association fellowship in our university in order that a greater interest in our industry may be fostered and an alliance be thereby entered into, the great value of which is unquestionable.

Gas Furnaces Built by One English Company During Past Two Years Running Full Blast Would Consume 1,600,000 Cu. Ft. of Gas Per Hour

Used for Heating Steel Billets for Shell Bodies, Annealing, Heat Treatment and Drying, Heating and Mixing Chemicals for Explosives and Manufacture of High Speed Tools

The gas furnace output of one company—John Wright & Company—in England, during the past two years, would, if running at full blast, consume 1,600,000 cu. ft. of gas per hour, according to the *Gas Journal*. These furnaces are used in munitions work for:

The heating of the solid steel billets for making the shell bodies.

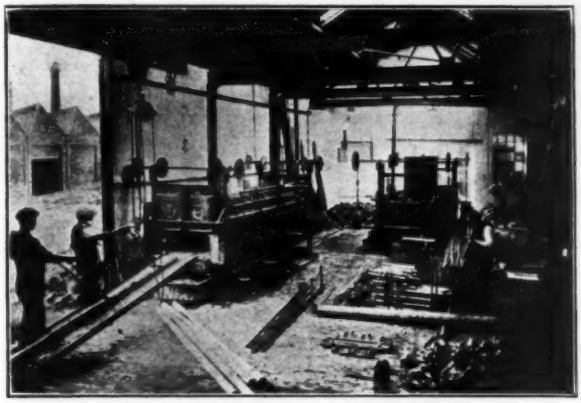


FIG. 1. ANNEALING FURNACE INSTALLED IN LARGE STEEL WORKS

The annealing and heat-treatment processes in connection with the "nosing-in" of the top of the shell body.

The drying of the lacquer inside the shell.

The heat treatment of the copper bands.

The annealing of the brass shell case, and the heat treatment of the shell cases returned from use at the Front.

The heating and mixing of chemicals in connection with explosives.

The fuse socket and body call for both melting and annealing, and also for the tempering of springs.

The high-speed tools used in boring, turning, and shaping the shell bodies are manufactured at one of the group of works; and, in addition, the firm's gas-heated furnaces are used for the hardening of such tools.

Gas Heating in the Manufacture of Cartridges

In the manufacture of rifle cartridges, these gas-furnaces play an equally important part. For the cupro-nickel bullet sheath (copper 80 per cent, nickel 20 per cent), the metal is melted in certain types of crucible gas-furnaces, and is subsequently annealed in gas-heated oven furnaces, after each successive stamping and drawing process.

For the front core of the cartridge (aluminum 90 per cent, zinc 10 per cent), the metal is melted in a gas-heated tilting furnace, and also the metal of the rear core (lead 98 per cent, antimony 2 per cent). The cartridge metal for the brass cartridge case (copper 70 per cent, zinc 30 per cent) is melted in a "Lip-Axis"

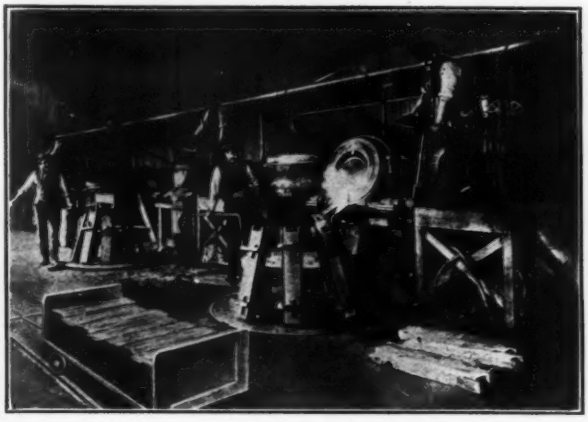


FIG. 2. AN INSTALLATION OF "LIP-AXIS" TILTING FURNACES

gas crucible furnaces, from which it is poured into strip moulds. These brass strips are annealed in gas-heated oven furnaces, after each of the successive rolling, stamping, and drawing processes. The copper for the percussion caps is also both melted and annealed in different types of the firm's gas-furnaces.

Renovating Brass Shell Cases

A unique type of furnace is a 30-ft. furnace wherein tubes are annealed by a uniform heat application throughout the entire length.

The cases of fired shells are not left to be picked up by future scrap metal vendors. These are gathered together and shipped back to England where the detonators are removed and the shell bodies smoothed out on mandrels in suitable machines. They are then submitted to a scouring in chemical baths; and, having been placed in boxes, are heat-treated in gas furnaces. After this they are ready for the subsequent processes leading up to the final assembling, as parts of new shells, preparatory to their undertaking a fresh journey to the Front.

The furnace used is a 24-ft. oven and is in itself of special interest. It has an endless chain running through its length, which engages with projections in the bottom of the boxes in which the shell cases are placed; and, by means of gearing on the extreme right, it carries the boxes through the furnace at such a rate that, by the time they arrive at the front end, their annealing is exactly complete. The operation takes 15 minutes at 400 deg. Cent., and pyrometers fitted to each furnace insure that this temperature is steadily maintained. From the chain, the boxes are automatically released, and slide down an inclined plane to the floor, where they are taken up by overhead runways for transference to the next department.

A two-sided four-hole furnace heats from eight to ten 15-in. shells per hour; and as these furnaces are

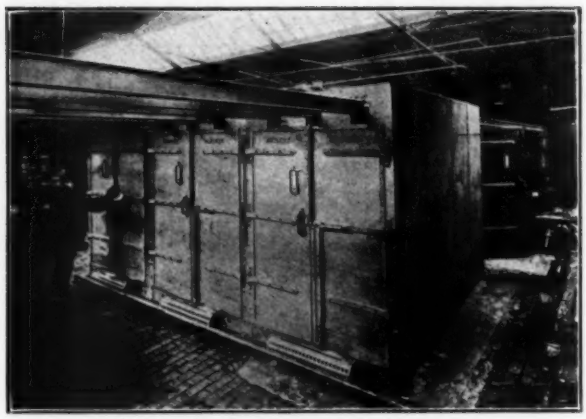


FIG. 3. 15-IN. SHELL-DRYING OVEN IN COURSE OF ERECTION

particularly compact, they lend themselves to installation in batteries so as to produce large outputs.

In front of the furnaces are two trolleys, which support the shell on sets of upper wheels, so that it can be revolved while its front end is in the furnace, and uniform heating thus be attained.

A similar arrangement—differing in certain details—is used with a 9.2 shell-nosing furnace which, carrying out the two operations required for nosing-in the shells, will turn out ten large shells per hour. In a nosing-furnace for 18-pounder shells, by the help of the waste heat from the lower furnace, the upper row of holes forms an annealing chamber, to which the shells are transferred after having been heated in the lower openings, and then "bottled" in the hydraulic press. The output of the furnace is forty shells per hour. All three of these furnaces have water-jackets round the front of the furnace holes. These, it is understood, were first made by the firm for the largest steel manufacturer in the world doing work of this kind; and the water-jacket principle has since been universally adopted.

Melting Cupro-Nickel for Bullet Sheaths

The pit type of crucible furnaces have been made for the melting of cupro-nickel for bullet sheaths or envelopes. They take pots of 250 lb. capacity, in which the alloy is melted in about 75 minutes, with a gas consumption of 6 to 7 cu. ft. per pound of metal melted. As much as 7 tons of cupro-nickel can be melted in a week in one of these furnaces.

Making of Cupro-Nickel Alloys Delicate Operation

The melting of the copper and nickel to form the cupro-nickel alloy is one of the most important and critical things in metal melting. The copper in the alloy readily oxidizes, while the nickel is keenly absorbent of impurities from the products of combustion, unless special care be taken during the melting.

Some casters first melt the scrap, then the copper, and finally add the nickel, which latter dissolves in the molten metal, and thus forms the alloy.

In other cases, the copper and nickel are put in together. The nickel is not melted by this, but dissolves in the molten copper at a lower temperature than that required for melting pure nickel.

At the end of the melt, cupro-manganese is added, as a de-oxidizer; this substance being, by a special contrivance, immersed below the surface of the liquid metal.

Throughout all these operations, the utmost care has to be exercised, or the whole melt may be very easily spoiled. There is a critical range of temperature within which the metal must be brought before it is fit to pour.

If it is poured at a temperature either above or below this range, the metal is useless; and, while a margin of some 5 per cent. either way may be permissible, any greater excess may make all the difference. Worst of all is the fact that this misfortune may not make itself evident until the bullet has gone through most of its subsequent processes. Thus much valuable time and labor may be wasted.

In this delicate poise of conditions, the gas furnaces are peculiarly helpful, as the desired temperature is rapidly reached, and the melt is not in the furnace longer than is necessary. So that there is the least possible opportunity for the absorption of impurities.

These gas-furnaces also repeat the melting operations under precisely the same conditions, and, unlike coke-fired furnaces, they can be timed to an exactitude, because of the perfect control over the combustion.

In an extensive metal works handling great quantities of cupro-nickel, the full consumption with the furnaces has been found to run as low as from 6 to 7 cu. ft. per pound of metal. If it were a question of merely melting the metal, this could be done in the furnaces with a still lower consumption. But the critical range of temperature already mentioned is far above the melting-point, and, to attain this temperature, much more gas has to be used than would suffice for simply reducing the metal to a molten state. It is calculated that the output of a single cupro-nickel furnace is equal to one and a half million bullet sheaths per week.

Larger furnaces of the same type are made for melting brass, copper, etc., in crucibles up to 300 lb. (brass), which is, generally speaking, the maximum size where the crucibles have to be lifted out for pouring.

The Tilting Crucible and an Annealing Furnace

The first of these, the "Lip-Axis" tilting crucible furnace, is being turned out as rapidly as the resources of the firm can compass. In this furnace, "pouring" difficulties are removed by the apparatus being pivoted in line with the lip or spout of the furnace, so that, when the furnace body is tilted by the operator on the platform at the side manipulating the large wheel, the furnace body rises, but the pouring point remains the same.

The moulds are brought directly under this, either on turntables or traverses, so that the need for ladles or for smaller pots is obviated, and the output is materially increased. There are few metals which are not at present being melted in these "Lip-Axis" furnaces for munition purposes. In particular, they are used for the melting of cartridge-metal.

The full charge of the crucible (600 lb.) is quickly poured; the filling of each mould taking about one minute. Working three shifts, and allowing for cleaning and changing crucibles, each furnace is capable of melting 19 tons of cartridge metal per week, with a gas consumption of 3½ cu. ft. per pound of metal melted.

An interesting sidelight on the output capacity of the furnaces is found in the fact that the maximum output of one of the largest size is sufficient to furnish strip metal for 1¼ million of .303 cartridge cases per week.

Another outstanding furnace is the well-known "Lopress" annealing furnace. The special feature of this furnace is the unique construction of the burner, by

which the operator can have at will either an oxidizing flame, or what is aptly described as a "greasy" flame, whichever of these is required for the work in hand. This "greasy" or smoky flame is essential for the correct heat treatment of steel.

High-Speed Tool Steel

Nothing has played a more conspicuous part in bringing munitions output to the position it occupies to-day than steel—and particularly high-speed steel—tools, in every conceivable variety, and the contribution made in this department by the firm's tool-steel works will be found to have been of no small consequence when the time comes for a more open review than is at present permissible. Messrs. Brayshaw have had many years' practical experience of high-speed tool steel manipulation in all its processes.

Alone among the firms engaged in such work, they are not merely makers of the tools, but, like the associated concern, John Wright & Company, are makers of the furnaces in which the tools are treated, and again in turn makers of apparatus in the manufacture of which the tools are employed. The immense advantage to both concerns of thus constantly learning, by first-hand experience, the exact result of every new tool-making method adopted is manifestly very great indeed.

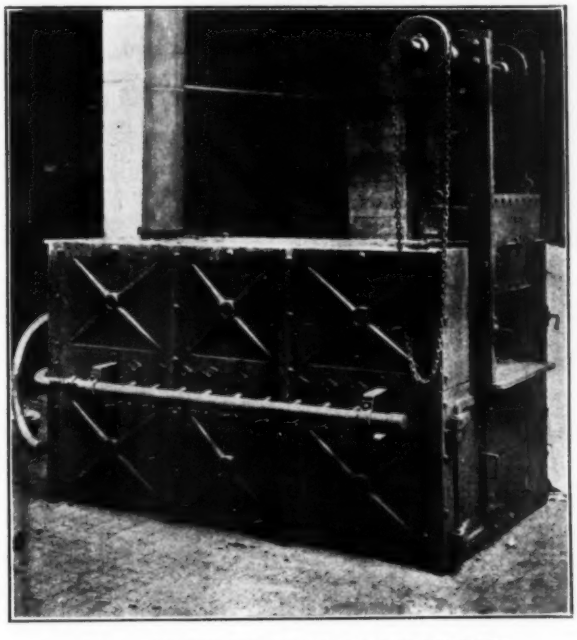


FIG. 4. REGENERATIVE ANNEALING FURNACE

The subject of chemical quenching baths for high-speed steel tools is one that Messrs. Brayshaw have made peculiarly their own. In addition to their business in this country, many tons of their "Feusalt" are being regularly despatched to the United States, Canada, etc., for the hardening of similar tools here.

Horseshoes Made Mechanically

In the ordinary way it may seem a far cry from munitions to horseshoes; but the connection in war-time is obvious enough, and the process of manufacture, in gas-furnaces specially constructed by John Wright & Company for the purpose is well worthy of remark.

Long round bars of metal, just over 1 in. in diameter, are placed in the furnace—say, ten at a time—and heated for a distance of 18 in. from the end, while jets of compressed air keep the remainder cool, to localize the heat. They are raised to welding heat—indeed, are dropping melted metal as they leave the furnace. The white-hot end of the bar is placed in a little machine having a horseshoe-shaped ridge, round which it is bent in a single operation by a boy operator manipulating a lever. It is instantly removed to a drop stamp, where two or three blows shape and finish it, and other blows cut off the "fin," and shear off the unused portion of the rod respectively.

Even in the making of a horseshoe detail is important. In this process, as in so many others to which gas gives a unique degree of accuracy, the metal must be at the exact temperature at which it will "flow" easily in the die, so that the little front projection of the shoe may be perfect.

Gas Heater Used for Room in Which Twenty-Fifth of a Degree Temperature Variation Would Be Injurious

To Guard Against Air Draughts or Cold Air Currents in Room Oxygen for Combustion is Drawn In Through Air Inlet from Outside Direct to Radiator

An interesting installation of gas-fired apparatus was made during the month of January at the Johns Hopkins University, in Baltimore, by the industrial fuel department of the Consolidated Gas, Electric Light & Power Company.

The Rowland gratings used in the analysis of light and the spectrum analysis of materials are made here under the supervision of Dr. Donald McKenzie and Mr. Childs.

As described in *Gas and Electric News*, the gratings consist of blocks of speculum metal alloys, which have a very highly polished surface. The surface must be as near a perfectly flat one as it is reasonably possible to obtain. There is but one specialist in the world who can do this.

On this surface a machine which carries a diamond point, draws 15,000 or 30,000 lines, according to the machine, for each inch of length of the metal.

Lines Must Be Parallel

These lines much each be parallel to the other, for if they are not the results obtained are of no value and the grating produces what are called "ghosts." These gratings are placed so as to allow a beam of light to fall on their surface with its many thousand lines. This causes the light to be broken into its parts and the spectrum is produced. This operation is very similar to a prism, except that the spectrum produced is much broader and spread out to a greater extent.

With such a machine as this, it can readily be seen that the temperature of the room in which it operates will directly determine the success or failure of the machine's operation. These lines are drawn so close together that the variation of one degree Fahrenheit in the temperature of the room will distort the position of the diamond point in such a manner that the grating is of no value. It is so sensitive that while the gratings are being ruled, no one is allowed to enter the room, as

the heat given out from a person entering the room is sufficient to make a very noticeable difference in the action of the grating machine.

It has been found that, if the temperature does not vary over one twenty-fifth of a degree Fahrenheit, satisfactory results are obtained. The apparatus designed to meet the requirements here consist of a Hawks gas-fired vented radiator, a Bryant valve and a Minneapolis heat regulator. As the room is very tightly constructed to prevent any air entering or leaving it when the doors are closed, it requires an entirely new and radically different method to furnish oxygen for the gas. It was necessary to take the oxygen from the outside rather than from the room in which the radiator was placed, for to have relied on the air in the room for oxygen, would have meant that the flames would have been quickly smothered. The radiator was, as a result, designed with an air inlet, the air being drawn from the outside.

The entire lower part of the radiator is boxed tightly and the air inlet pipe is connected to this.

GAS EXTINGUISHED BY PLACING HAND OVER AIR INLET

To show how perfect this construction is, the gas may be extinguished by placing the hand over the air inlet on the outside of the building. This means that heat is given into the room without creating any draught or circulating any cold air in any place except in the radiator inlet pipe.

In order that this piece of apparatus would be sensitive to the slightest change in temperature a relay was installed in the thermostat's electrical circuit. The gas burns in the radiator until the spring in the thermostat expands and touches the high temperature contact. This shuts off the gas.

As soon as the room had cooled enough to allow the spring to break this contact the gas is turned on. This makes a very sensitive and rapidly operating heat regulator. The direct current motor of this device is operated by two Edison Iron-Nickel cells. These were chosen because of their alkaline nature. The ordinary lead cells were not considered because of the corrosive gas given off.

This installation is a unique and distinguished piece of work, there being only three of these machines in the world, two in Baltimore and a third in Chicago.

Principles of Correct Heat Application More Abused in Forging Than Any Other Heat-Treating Operation

There is probably no heat-treating operation in use in which the principles of correct heat application are more abused than that of forging, asserts W. A. Ehlers in the March *Bulletin* of the National Commercial Gas Association.

In the greater part of the forging work done to-day, the steel is heated in oil-fired furnaces, coal and coke having been abandoned on account of their slowness and irregular heating of the metal.

A large number of forging furnaces are "make-shift" affairs with an oil burner applied at one or both ends with little or no thought for economy or quality of the finished product.

Such furnaces will produce uneven heating, especially where the flame impinges directly on the work nearest the burner.

One of the greatest faults with modern forging work is found in the desire for rapid heating. Under the action of a very intense heat the steel is made to "run" or drip on the exterior before the interior has become properly soaked. Consequently, there exists a core in the bar which when placed under the hammer does not forge properly.

It is very important, in order to obtain the best results, that the work should be heated slowly in a soft, reducing atmosphere. Forging temperatures should range from 1,500 deg. Fahr. for high-carbon steel to 1,800 deg. Fahr. for low-carbon steel. But instead of these temperatures, we find more forging being done at a "white heat," which is probably nearer 2,500 deg. Fahr.

High-speed steels for cutting tools should never be forged. It is far more economical to turn down such tools from bar stock if the best product is to be obtained. There are, however, a large number of such tools being made to-day by forging operations. A well-known steel drill is being made in all commercial sizes and in larger quantities, where the flat stock is heated and twisted into the proper shape and size. Then it is hardened and ground to the proper dimensions. The temperature for forging such tools is usually from 2,000 to 2,200 deg. Fahr., and in the product just referred to, there is very little hammering done to the steel.

After forging, all steels having cutting edges or bearing surfaces should be reheated to a temperature of from 1,400 to 1,500 deg. Fahr. and allowed to cool slowly. After this operation they must be ground in order to remove a thin coating of decarburized iron existing in all hot rolled steel, for this surface, if allowed to remain, will prevent hardening.

New Gas Plant at Rome, N. Y., Nears Completion

Total Cost of Plant Between $250,000 and $300,000—Built With An Eye to the Future, and Capacity Can Be Readily Doubled

In the near future, possibly two or three months from now, the Rome Gas, Electric Light & Power Company will begin the manufacture of gas in its new plant in East Rome, N. Y., between Mill Street and the Mohawk River. This plant is now in the course of construction and is being erected to satisfy the demands of an ever-increasing business. When finished it will be modern and complete in every detail.

Along in 1915 the growth of business made it imperative that the gas plant be enlarged. There was no room available for the enlargement of the old plant on S. Madison Street, so the officials of the Rome company, with Bert Morton, the local manager, gave the situation a thorough canvass and decided on the erection of a complete new plant.

They sought for a location for the new establishment and last January purchased 12 acres of meadow land of the W. J. P. Kingsley estate. The general superintendent, D. F. Burritt, took personal charge of the construction; plans were drawn, specifications were written and contractors in their various lines were asked to submit bids.

Work was started as soon as the frost was out of the ground last spring. The company began operations by putting in the foundations. C. W. Knight & Son of Rome were retained as consulting engineers and architects. F. H. Sprague was engaged as engineer and superintendent.

As soon as the foundations were completed the contractors began work on their contracts. The contract for the erection of the works building was let to W. G. Jones of Rome. This building will house the boiler room, condenser room, office, water gas department and purifier room. Mr. Jones was also awarded the contract for the erection of the concentrator house and the governor house.

The contract for the complete coal carbonization plant was let to the Parker-Russell Mining & Manufacturing Company of St. Louis, Mo. The contract for the main gas holder and relief gas holder was let to Stacey Brothers Gas Construction Company of Cincinnati, O. They also took the contract for the gas purifying apparatus, meters and governors. The contract for the underground steam-heating system was let to the American District Steam Company of North Tonawanda. The contract for structural steel for the works building was let to the Utica Steam Engine & Boiler Company, and the roofing to the Johns-Manville Company of New York.

Progress to Present Time

At the present time the works building is completed with the exception of a small section of roofing and some glazing which is being done. The machinery to go inside the works building is on hand and the boilers are being erected. The retort house has been completed and the installing of the retorts is now going on. The retort house will have a capacity of 500,000 cu. ft. of coal gas in 24 hours. The present retort house has a capacity of only 200,000 ft. A gas holder with a capacity of 200,000 cu. ft. of gas has been erected. The relief holder is under course of construction. The coke shed will be erected next Spring and the foundations for the coal storage house have been completed and the shed will be put up in about two months. The concentrator and governor houses are ready for the roofing. The yard piping has been completed and about one-half of the grading of the lot has been done.

Approximately 650 piles were driven under the different foundations which required 4,000 barrels of Portland cement to erect. To bring the yards up to the proper level 30,000 cu. yds of gravel filling will be used. A large part of this gravel was taken from the company's land near the Mohawk River and distributed on the premises.

Use of Old Machinery

Some of the material and machinery in the old plant will be used. At that plant there were located three gas holders. The largest and newest one will be maintained for a reserve supply holder. One of the others has been taken down and moved to the new plant as a relief holder. The outside shell is used in its reconstruction and new inside sections are being put in. Its capacity will be doubled. The other holder will be scrapped. The water gas plant together with all appliances for the purifying and metering of the gas will be removed from the old to the new location.

Fireproof Buildings

All of the buildings are constructed of fireproof material, brick, steel and concrete. The window frames and sash are of metal and wired glass is used to admit the light. All the buildings were designed with a thought of the future. Everything is so arranged that the capacity of the plant can be doubled with very little trouble and expense. The gas holders will hold a two days' supply of gas. The buildings are roomy and there is plenty of space for the employees to move about in the discharge of their duties.

Heating

The heating system is complete. In the works building it is done by means of a low pressure gravity system using 6 lb. pressure distributed through three column radiators. The two gas holders and governor house are heated by steam run underground from the boiler room in the works building. The boiler pressure is reduced through a reducing valve running from 4 or 5 lb. in mild weather to 40 lb. in severe weather. The piping is all of standard underground construction with standard full weight wrought iron pipe. This pipe is wound with two thicknesses of 1/32-in. asbestos paper held in place by copper wire. Over this is placed a 4-in. shell casing two inches larger than the size of the pipe. This casing is made from kiln dried selected white pine lumber made up from staves with tongue and groove throughout their entire length, held in place by galvanized wire wound spirally around. The outer shell is thoroughly coated with asphaltum pitch and covered with shavings. The expansion of the line is taken care of by expansion joints and 637 ft. of pipe were used in the underground mains.

Water Main

A 6-in. water main was laid in the yard and this furnishes water for the boilers and gas purifiers as well as for fire protection. Fire hydrants have been located at convenient points.

Cost of Construction

The cost of construction of the new plant will be between $250,000 and $300,000.

The Sassafras Point Station at Providence —A Correction

On page 265 of the March 17 issue of this journal, reference was made to "three sets of United States Gas Improvement Company's latest and most approved type." Obviously this should have read "United Gas Improvement Company's, etc."

Effort and Study Necessary to Become Successful Salesman

The true art of salesmanship consists in marketing goods (it is understood at a profit) and in such a way as to insure future preferential dealings with the customer, declared G. H. Tweddell in a paper presented at the meeting of the Institution of Engineers and Shipbuilders, held at Newcastle-upon-Tyne, Oct. 26, 1916. We are all salesmen to a degree, whether we sell machinery, our manual or mental services, or even the use of our money. Like everything else worth having, the becoming of a successful salesman requires effort and study.

Government Will Use American Made Dyes

By August the Government expects to get from American sources all the dyes it uses in printing stamps, paper currency, and the like. In the meantime it has a sufficient stock, from its two special importations from Germany.

AMERICAN
GAS ENGINEERING JOURNAL

FIFTY-EIGHTH YEAR

Published Weekly by
AMERICAN GAS LIGHT JOURNAL, INC.
42 Pine Street, New York, N. Y.

ELBERT P. CALLENDER, President
STANTON G. KRAKE, Vice-President
FREDERICK A. SOUTHWORTH, Secy.-Treas.

EUGENE C. MILES, Editor

WESTERN MANAGER
E. B. FRITZ

CHICAGO OFFICE
537 So. Dearborn St.

Subscription $3.00 per year, including postage in the United States, Mexico, Cuba, Porto Rico, Hawaii or the Philippines.
In Canada, $4.00. Foreign, $5.00

Entered at the Post Office, New York City, as Second Class Matter.

CONTENTS

HISTORIC CHURCH IN NEWPORT, R. I., USES GAS FOR LIGHTING, NOT BECAUSE OF ECONOMY BUT BECAUSE IT GIVES THE BEST SERVICE... 289
HOW THE MANAGER OF A SMALL GAS COMPANY CAN DEVELOP HIS INDUSTRIAL GAS FIELD.. 291
RESULTS ATTAINED BY USING SALINE SOLUTION FOR FREEZE-UPS AS GOOD AS THOSE WITH ALCOHOL 293
WHEN CONTINUITY OF SERVICE IS AT STAKE MATTER OF EXPENSE CANNOT BE GIVEN TOO MUCH WEIGHT 294
GAS FURNACES BUILT BY ONE ENGLISH COMPANY DURING PAST TWO YEARS RUNNING FULL BLAST WOULD CONSUME 1,600,000 CU FT. OF GAS PER HOUR..... 295
NEW GAS PLANT AT ROME, N. Y., NEARS COMPLETION 298
EDITORIALS 300
PUBLICATIONS 302
LAY 6-IN. GAS MAIN ACROSS FROZEN RIVER AT TOTAL COST OF TWO HUNDRED FORTY-SEVEN AND ONE-HALF DOLLARS..... 303
NEWS OF THE GAS INDUSTRY..... 305
SOCIETIES AND ASSOCIATIONS..... 311
PERSONAL NOTES 311
CONSTRUCTION NOTES..... 312
FINANCIAL NOTES WILL BE FOUND ON PAGE 16 OF THE ADVERTISING SECTION.

The Ideal Industrial Fuel Gas Salesman

The specifications for the industrial fuel gas salesman outlined by Bruno Rahn in his paper presented at the recent annual convention of the Wisconsin Gas Association, which is abstracted elsewhere in this issue, present to us an ideal type, but one which we feel assured gas companies in general will find difficulty in securing in even moderate numbers. In fact we fear that Mr. Rahn has set his standards so high as to have in a way a discouraging influence on many managers.

At the best, the development of the type outlined will be a matter of years. We would do well to hitch our wagon to the star he has pointed out to us, but as a salesman of the future.

In the meantime we should not mark time in the industrial fuel field. There is a great deal of business that can be gotten through the installation of stock appliances. We should obtain this with the force we have at hand.

Other prospective installations that require original study and design can be handled by calling in engineers from the outside who make a specialty of such work.

Thus we may build up our business during the period we are developing the type of man we know we will eventually require.

But in the meantime we must provide an incentive. The industry must indicate its intentions in the way of compensation for such men. Oldtime salary traditions must be shattered in this case.

Knowledge such as Mr. Rahn's type of industrial gas salesman has a monetary value, and it is high. Even a less idealistic type has a value that would shock our present-day sensibilities to contemplate.

The industrial field is a big situation. It must be handled in a big way. The compensation of the *real* industrial gas salesman should be practically immaterial to the gas company. No matter how high it may be, if he is an effective salesman, it will be very small in proportion.

His accomplishments are not to the company a matter of a day. They endure for months and years.

Let us assume he takes six months to study out and secure one installation of reasonable magnitude. On a basis of first cost it has been an expensive proposition to the company.

But, then, the salesman devotes his time to other installation prospects. The one he has made, after a short period, requires none of his time, but continues to pay part of his salary while he is after other work—for the company.

The gas industry should set a high mark as the industrial fuel gas salesman's salary limit or by some scheme of percentage on output of the installations he has made—somewhat after the manner of the royalties authors receive on books—provide the incentive that will induce promising men to aspire to become *real* industrial fuel gas salesmen.

Manufactured Gas Distributed to Points as Far Distant as Ninety Miles

In his paper on "The By-Products from the Distillation of Coal," presented at the January meeting of the Syracuse Section of the American Chemical Society, W. H. Blauvelt, consulting engineer of the Semet-Solvay Company, calls attention to the fact that manufactured gas has been distributed to points as far distant as ninety miles. What a striking index as to the future—perhaps very distant future—conditions of gas manufacture this figure gives us.

Dr. L. H. Baekeland in his address at the Baltimore Centenary—abstracted in AMERICAN GAS LIGHT JOURNAL, July 31, 1916, page 74—foresaw the day when "our future gas producing plants will be located at points removed from the zones of consumption . . . probably near the mines." It is to be noted that Mr. Blauvelt in the paper under discussion makes a somewhat similar assertion.

The fact that it has been demonstrated that manufactured gas can to advantage be distributed as far distant as ninety miles does not by any means bring us to an appreciable extent nearer to the condition these authorities have foreseen, but what a prospect it opens up for gas companies operating under present-day conditions.

There are many companies which consider that they have developed their present territory in the domestic end to the point of saturation. They have the industrial field to look to yet as a means to increase their output considerably.

But the gas industry is not an industry of a day or a week. It is an industry of decades and it will be an industry of centuries. In a relatively short time the industrial field will likewise be developed to the point of saturation just as their domestic field is.

Gas companies located in the center of relatively thickly settled rural districts should consider promptly the advantages of running high pressure lines into them. In a large number of cases there is a very profitable business to be had there.

A Commendable Departure

The new house organ of the Public Service Gas Company and the Public Service Electric Company of New Jersey has made a good start. The publication has original features. It has points of difference from other similar publications. This is the very essence of good journalism, even though, as a house organ, it may be said to have no competitors.

In the second number it alludes to the companies' many authors. We quote the following:

"Articles by men who are actively engaged in the very midst of things are of particular interest, they generally have the red blood of life in them. It is our opinion that the whole industry would be greatly benefited and the value of technical journals would be much enhanced if they published more contributions by men of this class rather than long dissertations by professional writers.

"A one-ounce story of what you know is worth a pound report on what you have been told."

Elsewhere in its columns articles contributed to various technical publications are cited and the authors' names given as well as a few words of comment. The authors are publicly commended within the circles whose commendation will doubtless prove to them the greatest source of satisfaction. Incidentally, an indirect pat on the back is given the whole organization, for a force which can provide writers on so wide a range of subjects, whose work is sufficiently meritorious to find acceptance for publications of such rigid requirements, must be perforce an exceedingly alert organization, and one well grounded in the technical knowledge its fields require.

We assume this department is to be a regular feature of the new publication. So far as we know it is a feature that is included in no other similar publication. Its adoption indicates original thinking. It also supplies a substantial reason for the periodical's existence. Such publications are not merely intended for entertainment. They must do some good; accomplish something.

Service has already made great strides towards so doing. It has provided an additional incentive to members of the working forces of its companies to write. It has consequently paved the way to greater efficiency on the part of this force.

Standardize Gas Service

C. O. Bond, in an address given before the New England Section of the Illuminating Engineering Society and the New England Section of the National Commercial Gas Associaation, brought out very forcibly the necessity of standardizing gas service.

At the present time we find pressures at the consumers' meters ranging all the way from 2-in. pressure to 4-in. pressure. We also find that the quality of the gas may be frequently changed. The result is that if a burner is perfectly adjusted in the daytime the change in the gas and possibly also change in the pressure will bring about conditions which will make it burn imperfectly at night. Let the quality and the pressure of the gas supply be standardized and maintained uniform and there will be no trouble in giving a lighting service that the consumer will be only too glad to pay more for even than he pays for electric lighting.

Everyone who knows admits that gas lighting is inherently superior to any other lighting. This being so, the whole industry should do all in its power to standardize gas service.

PUBLICATIONS

Carburetted Water Gas Apparatus

Booklet; 28 pages, illustrated; issued by the Gas Machinery Company, Cleveland, Ohio.

A discussion of the production of carburetted water gas and description of the apparatus used. Cannot be called a catalogue, but rather a brief treatise on this subject. The name of the company is not mentioned in one case from the beginning to the end of the work. The illustrations are abundant and *illustrate*.

Valuation, Depreciation and the Rate Base

Author, Carl Ewald Grunsky, Eng. D., assisted by Carl Ewald Grunsky, Jr. Cloth bound; 387 pages. Publisher, John Wiley & Sons, Inc., New York City.

An original analysis of the problem cited, special consideration being given to a discussion of the non-agreement of the actual life of articles which have a limited period of usefulness with their probable or normal life. The results of the author's study, in his opinion, show that there is great advantage in adopting, instead of "present value," a rate base without deduction for depreciation, which will include but little, if anything, other than legitimate and properly estimated cost as the starting point when rates are to be fixed. In his contentions he takes issue with the rulings of the U. S. Supreme Court in that apparently they compel the valuing of a public utility property according to accepted standards at present worth in fixing rates as laid down in this commission's ruling in the case of Wilcox vs. The Consolidated Gas Company of New York. The chapters include: Introduction and General Notes; Definitions; Fundamental Principles; Essentials of Value; Elements which Reduce Value; Effect of the Non-Agreement between Actual and Probable Life upon the Determination of Depreciation; Purpose of the Appraisal; Fixing of Rates; Possible Procedures when the Rates for a Public Service are to be Fixed; Notes on the Determination of the value of Real Estate in Eminent Domain Proceedings and for Rate Fixing Purposes; Accounting System, and a chapter on Valuation of Mines and Oil Properties by C. E. Grunsky, Jr.

Also included in the volume are a set of tables prepared by the author intended to meet the requirements of the valuation engineer and economist. These cover: Probable useful life of various articles; expectancy and remaining value; amount of a dollar after from one to 100 years at various rates of compound interest; present value of a dollar due at a future date; the amount of annuity of a dollar; the annuity which will amount to a dollar in a given time; the present value of the annuity of a dollar; the annuity a dollar will purchase and amortization and depreciation.

Vulcan Gas Appliances

Perpetual catalog; cloth bound; loose-leaf; 197 pages, illustrated. Issued by the William M. Crane Company, New York City, N. Y.

Deals with the company's gas ranges and water heaters; Vulcan appliances for hotels, hospitals, institutions, bakers and confectioners; Vulcan industrial and miscellaneous gas appliances and Vulcan room heaters. Pertinent information is given in regard to repair part names, list prices, kind of gas made for, weights, dimensions, floor space occupied, operation, gas consumption, etc., in an especially concise and get-at-able form. Matter is printed on one side of page only and all appliances are illustrated by halftones.

Especially interesting appliances shown are an oyster stewer and chafing dish, a poultry singer, the confectioners' stoves, the giant industrial gas burners and the high power burners. Also the soldering furnace, the laundry and tailor stoves.

Operation of Gas Works

Author, Walter M. Russell, manager Emporia Gas Company; cloth-bound; 209 pages, illustrated; 9 x 6 in., McGraw-Hill Book Company, 239 West 39th Street, New York City, publisher. Price, $2.00 net.

A book intended to supply the needs of the foreman, superintendent, engineer and cadet who is connected with a small or medium-sized gas works, and who desires to increase and widen his knowledge of the principles and practice of gas making. It is the opinion of the reviewer that, while the author has succeeded in producing a work of real value and one that is unquestionably needed, he has failed to reach the first of the classes cited. His style of presentation is, despite a studied effort to present his subject in clear and non-technical language, somewhat above the comprehension of a reader of the degree of education the average gas works foreman would be expected to possess.

An especially commendable feature of the work is the organization charts which appear in Chapter 1. The recommendations that are offered cannot but have a beneficial effect if they are widely adopted and applied.

The illustrations show care in selection and bring out and explain the text in a very agreeable manner.

The author has handled his chapter on chemical control in a more concise manner than it is usual to see this branch of the works management presented. In other works in which this subject is dealt with, which have come to the reviewer's attention recently, it has seemed that the different headings were discussed in such manner as to confine them exclusively to the easy understanding only of the chemist. In this work the subject is dealt with in such manner that the engineer whose duties do not require specifically that he possess such knowledge, but who desires to familiarize himself with all the ins and outs of the business, can obtain the knowledge he requires without drawing too hard on the rather incomplete knowledge of chemistry he acquired during his college course, but which has since lain dormant in some recess in his mind.

The reviewer is of the opinion that this author has prepared a work that is entitled to a place in every gas company library.

Lay 6-In. Gas Main Across Frozen River at Total Cost of Two Hundred Forty Seven and One-Half Dollars

Contractor's Price on Similar Job in Same Stream was $2,500—A. F. Davey Gives Details of Interesting Work in which Line Was Assembled on Ice Before Lowering into Place

Green Bay, Wis., is a city of thirty thousand population, situated on both sides of the Fox River which flows north into Green Bay. The harbor is one of the finest on the lakes and extends from Green Bay on the north to the extreme southern limits of the city. The river accommodates the largest boats. From a gas consumption standpoint, the river evenly divides the city.

During the past five years, gas sales had so greatly increased, that it became apparent during the summer of 1915 that provision would soon have to be made for reinforcing the west side distribution system, which is fed from the works established on the east side of the river. At that time the west side distribution system was fed by a 6-in. low pressure submarine main just north of the Main Street bridge and a 2-in. high pressure submarine main north of Mason Street bridge, feeding into a governor. These two bridges are about a mile and one-half apart. Any trouble on the booster line or governor, would cause a great many low pressure complaints on the west side, as the 6-in. line was not large enough to carry the load. The 2-in. main was a temporary main, laid while building the new Mason Street bridge.

These facts were outlined by A. F. Davey, in the introduction of his paper on " Laying a Submarine Main in Winter," presented at the recent annual meeting of the Wisconsin Gas Association, from which the following has been abstracted.

The submarine main at Main Street bridge was a cast-iron main with lead joints, which was laid by a contractor of the city for the sum of $2,500, as near as could be ascertained. We had some experience with the contract price on submarine mains in DePere three years previous and felt that this price was way out of reason.

At Mason Street, both east and west of the river banks, a 6-in. main existed. Therefore, we decided to lay a 6-in. main across the river at that point. The stub on the east side was south of the bridge and two hundred and forty feet to the east.

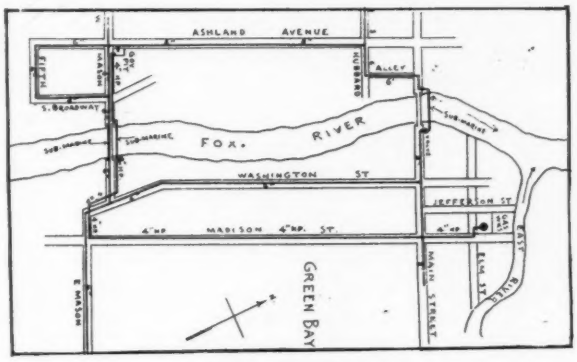
South of the bridge on each side of the river, were large coal docks, handling thousands of tons of coal a year. In order to get away from the danger of dragging anchors, we decided to cut into the 6-in. main on the east side, north of the bridge and extend from that point.

Steel Pipe Used for Main

The plan was to get everything ready and lay the main during the winter when the ice was strong enough to put the pipe together and lower through the ice.

On account of the price, weight in handling, flexibility when lowering into the river and method of joining, it was planned to use steel pipe. The pipe used was a 6-in. full weight line pipe weighing 19.36 lb. per foot.

This pipe was to be connected up with river sleeves. This is a Dresser sleeve threaded on the inside with gaskets at each end and twelve ¾-in. bolts, six on each side to draw the gaskets up tight. There is no expansion in these joints. Each of these sleeves weighs 140 lb.



LAYOUT OF WORK

The rubber gaskets of triangular cross section, were duck tipped.

Cutting Ice to Make Soundings

On Jan. 6, two expert sawyers, an ice plow, saws and ice picks, were rented from the ice company. The course selected for the main was close to the bridge and a channel was cut for taking soundings. The plow was used for marking out the trench. Two or three cuts were made with it; 15 in. apart. A horse was used for drawing the plow to a point near the channel where the ice was only 6 in. in thickness, where it was thought best not to use it.

Two sawyers, one on each side of the trench, were used to cut the ice after it was marked out by the plow. A man with an ice pick followed them along, breaking the sawed ice into 3-ft. lengths and pushing them under the ice out of the way.

Three men with a sounding bar followed the sawyers, taking soundings every 2 ft. The rod, or sounding bar, was marked off into feet and quarter feet, and was made from 1¼-in. pipe. One man followed the sounders, keeping the records.

River 30-Ft. Deep at Channel

We found it was somewhat difficult to keep up with the sawyers, and from time to time when they would gain two or three hundred feet, they were used to help on the sounding bar.

The river bed was found to have a natural slope from each side toward the channel, at which point it was 30 ft. deep.

No obstructions of any kind were located until we neared the west bank, when, what we judged to be sunken piles, were found. There were two of them, about 40 ft. apart. It was found by sounding, that changing the course slightly to the north at that point, would avoid this obstruction. The work of sounding took about eight hours, being finished at four o'clock.

At two o'clock in the afternoon, after three quarters of the work of sounding had been completed, the wind came up and blew across the river at the rate of thirty-six miles per hour. The temperature dropped from eight

above to six below. The last 300 ft. of sounding was rather difficult as the men's gloves would freeze when they became wet from drawing up the sounding bar and the water in the trench would freeze ahead of us.

Pipe Painted Four Coats

After the work of sounding had been done, we had to think of protecting the skaters and men from the coal docks who walked across the river, from the trench. A great many limbs cut from trees around the city by the electric department, that were piled near the gas works, were hauled to the job and placed in small holes made in the ice on the side of the trench about 5 ft. apart. These, with lanterns hung, were very effective. We found out afterwards this was unnecessary, as at six o'clock the ice in the channel had frozen enough to walk upon.

The pipe had been painted three coats of pipe paint applied hot and been piled up at the gas works. The pipe was hauled to the river bank on sleighs and placed upon an improvised sled made of 4 x 4's and one horse was used to draw it out in place, ready for being screwed together.

After being hauled out onto the ice, it was placed directly over the trench where the soundings were taken and screwed together, six men being used for this work; one man on the tongs and the other five men pulling on the rope fastened to the tongs in order to draw the pipes up to the last thread. After two pipes were connected, one man followed them putting in bolts and drawing them up. After the joints were tight, they were carefully gone over again with pipe paint.

The afternoon of the day that we began screwing the pipe together, the weather moderated considerably, with the result that the snow on the ice melted, leaving four or five inches of water to work in. This water froze up the next night, embedding the sleeves in two or three inches of ice, making it necessary to cut them out in the morning.

All the pipe was screwed together on top of the ice and tested under 20 lb. of gas pressure. Two slight leaks in sleeves were found and repaired. The main was then tested again and found tight.

Lowering the Pipe

Over the low spot in the river which we had found when sounding, the drip was installed. The 6-in. service clamp was placed onto the main with a lead gasket. The service clamp had a 1½-in. opening into which a 1½-in. street ell was inserted, and the drip pipe extended about a hundred feet east and eighty feet south to the nearest bridge pier.

As we were very short of labor at that time, we decided to start this work on Sunday morning and use our yard men and drivers regularly employed at the gas works. Four double blocks and tackle were borrowed from the electric department and placed around the pipe and fastened to the bridge. A sawyer on each side of the pipe cut out the trench. Another man followed them along, pushing the ice out of the way. After one hundred feet of trench had been opened, that much pipe was lowered into the river, the blocks being moved from time to time. At noon, after a bad start, about one hundred and fifty feet of pipe had been lowered. After dinner, work went along in good shape, and we lowered everything into the river up to the drip.

Just before finishing for the day, one of the sawyers who was standing on the ice he was cutting out, fell into the river, but luckily men had been employed to stand directly on each side of the sawyers so as to extricate them from the river if such an accident should happen. We placed life lines under the arms of each sawyer from that time, with the ends in the hands of men stationed there to protect them.

Leak Shows Up After Line Was Submerged

On Monday morning, the work of lowering the remaining main and drip began. The drip was fastened to the main by strong wires and all lowered at the same time. Monday afternoon, at about five o'clock, the entire main was in place in the river.

Early the next day a test was made. A sand hole in one of the fittings used on the drip was found, and therefore repairs were made without interfering with the main. A 30-lb. test was put on the main at that time and found to hold for four hours with only a very small loss in pressure. Nothing further was done with this main until in April when the ice was all out of the river.

Our plan was to have a diver patrol the entire main to see that it was lying in place. Before having him do this, the drip was pumped and after a considerable amount of work, we thought there must be a leak. A test was put on the main and a small leak showed on top of the water, just west of the drip connection. A diver with complete outfit, including scow and tender, was hired from the local contractor to make the necessary repairs. We judged the leak was in a sleeve and this proved to be true. It required only a few minutes to draw it up.

After repairing the leak, the diver started patrolling the main from the west shore. He had been down about thirty minutes when the signal was given to draw him up. He stated he found the main lying across what he thought to be the hull of an old boat, which projected above the river bed about three feet. This was of oak, 4 in. in thickness and lined with ⅛-in. sheet steel.

The diver cut the steel from the place where the pipe was to lie with chisels, which proved to be a very difficult job.

The water at this time was very cold and it was necessary that his hands should be bare in order to properly handle the tools. The work of removing the steel required a day and a half. A piece 8 in. wide was cut down through each side and the pipe was slowly lowered into place.

A further test showed one small leak just west of the one repaired. The diver fixed this and continued his trip across the river. He found the balance of the main lying evenly on the bed of the river. The work of patrolling and repairing was completed in just three days.

Unit Cost of Laying

The gas connection from the east shore was made and a recording gauge set at the west end which showed thirty-two tenths on the peak.

This main was put in service early in May from which date we have had no further pressure trouble, although the high pressure is used during the peak loads in the months of heavy consumption.

The cost of laying the river main was 15.5 cents per foot. The cost of patrolling and repairing the leaks brought this up to 27.5 cents per foot. The river pipe, figuring repairs, cost less to lay than the balance of the main. The entire cost of laying the river main was $247.50, which is quite a difference between the cost of the submarine main at Main Street.

News of the Gas Industry

Industrial Fuel, Gas Fellowship and Rating of Utilities Service Discussed at Wisconsin Association Convention

B. F. Lyons Elected President of Both Gas and Electric Associations — Suggested Co-operation of Small Companies in Securing Services of Technical Fuel Salesmen — Use of Brine for Freeze-Ups

The sixteenth annual convention of the Wisconsin Gas Association was called to order by President F. L. Cross in the presence of 30 or 40 members at 10: 50 a. m. on Tuesday, March 13, in the red room of the Hotel Pfister, Milwaukee, Wis. Henry Harmon, the secretary of the association, then presented the report of the Executive Committee. Seventeen new active and three associate members were proposed and elected to membership. To offset this increase in membership to a certain degree thirteen members resigned or were dropped from the roll.

The committee on factory lighting reported progress, but nothing definite was presented. It was recommended that the committee be continued. The public relations committee reported as having dealt with only one important question during the past year. This was in reference to the moisture content of coke, and through the able work of R. B. Brown, some adverse legislation was avoided.

B. F. LYONS

The president's address was very able and was favorably received. In his discourse, Mr. Cross called particular attention to the problems which now confront the gas utilities throughout the state, namely: The high cost of materials; the failure of the common carriers in transporting material; the scarcity of labor and the price it was necessary to pay for labor; the problem of recompensing clerks and salaried employees in proportion to wages paid to labor; the taxation problem; and other pertinent issues. Mr. Cross also recommended considering the establishment of a fellowship at the University of Wisconsin.

The paper on "The Use of Brine for Freeze-Ups" was read by W. F. Clausen of Winona, Minn. This describes the use of a 22 per cent. saline solution in the place of wood alcohol for frozen services, with good results. In the discussion which followed Mr. Montcrief, of LaCrosse, stated that he had used such solution with success on large mains, but that on small mains, 2 in. and under, trouble was experienced owing to traps in the pipe. In reply to a question Prof. Kowalke stated that he did not believe the pipe would be internally corroded to a great extent unless an excessive amount of oxygen was present. This will not likely be the case when distributing gas.

In the afternoon session the first paper presented was that by Bruno Rahn of Milwaukee on "How Can a Manager of a Small Gas Company Best Develop His Industrial Gas Field?" This paper is a valuable contribution to the literature on industrial gas and was attentively received. A long discussion resulted in which many ideas were brought forward.

Plea for Greater Efficiency in Industrial Equipment

F. F. Cauley, of Chicago, stated that the starting point for satisfactory service was at the main pipe, and that unless the main, service, meter and piping were adequate, the service to the appliance would be unsatisfactory. Mr. Cauley believes that a customer must be continuously visited by the industrial man in order to help him over the rough places. He ended with a plea for closer attention to industrial equipment, and to the development of greater efficiency in such appliances.

B. F. Lyons, of Beloit, spoke of the necessity of united action on the part of appliance manufacturers in

Landslide Breaks 20-in. Main

Because a landslide, about 800 ft. long broke a 20-in. gas main at Balds Gap, following the recent storms, industrial consumers of gas in Portsmouth, Ironton and other Ohio cities were compelled to close operations for a short time. A sufficient supply of gas was retained to keep domestic consumers from suffering. A carload of workmen from Charleston, W. Va., was sent to make repairs. A great deal of gas escaped through this break in the main, before it could either be shut off or temporary repairs made. . . .

Community Garden Latest Gas Undertaking

The Newport News & Hampton Railway, Gas & Electric Company of Virginia is showing the true co-operative spirit in undertaking to establish a community garden for the benefit of its employees. The company will furnish the land, President Shannahan will furnish the fertilizers and the men will furnish the seeds and till the soil.

developing appliances. He cited the need of a development bureau to undertake such work.

G. S. Patton aroused enthusiasm by stating that there was no point of saturation in the gas business, and stated that the trouble experienced by small companies was in finding technical men for salesmen. This led John St. John to suggest that several small companies should band together to hire an expert technical salesman.

J. H. Walker, of Milwaukee, hit the nail on the head when he made the point that rates of a character to make such gas fuel attractive were essential.

John Zander, of Chicago, after a flattering introduction from E. G. Cowdery, pointed out that each industrial fuel job was an individual job and had to be studied individually.

Past-President Butterworth held that a small city man has a decided advantage over his large neighbor since he is in close personal touch with his customers. R. B. Brown stated that the small company manager was the logical man to carry on such work, and called attention to the willingness of men in large organizations to help his small town associate if the latter would only closely study his problem before coming for help.

Establishment of a Gas Fellowship

Prof. O. L. Kowalke, of the University of Wisconsin, then gave a short talk on the use which the university can be to the public utilities in the state. The talk was illustrated with lantern slides and was attentively received. This paper resulted in a strong discussion as to the establishing of the fellowship at the university advocated by President Cross. R. B. Brown and Past President Butterworth discussed the possibilities of such a course. H. H. Clark, of Chicago, secretary of the Illinois Gas Association, described the workings of the agreement between this association and the University of Illinois, and President Cross likewise described the Michigan Gas Association fellowship. It was decided to appoint a committee to find ways and means for bringing about the desired result as suggested in Prof. Kowalke's paper.

In the absence of R. S. McBride, C. E. Reinicker presented the paper on the Bureau of Standards. This paper was supplemented by moving pictures showing the various activities of the Bureau at Washington.

At the Wednesday morning session A. F. Davey, of Sheboygan, read a very interesting paper on laying a gas main on the bottom of the Fox River during the winter months.

The following officers were elected for the coming year: President, B. F. Lyons, Beloit; vice-president, Guy F. Gregg, Milwaukee; secretary and treasurer, Henry Harmon, Milwaukee; representative in American Gas Institute, S. J. Glass, Milwaukee.

Joint Session with Wisconsin Electric Association

The meeting then adjourned to convene again with the Wisconsin Electric Association in joint session. At this session the report on taxation was presented and E. J. Steinberg of the Wisconsin Railroad Commission read a very interesting paper on "Rating of Gas and Electric Utilities' Service."

The paper by Halford Erickson on "Rate of Return" was a complete and logical presentation of facts, and worthy of close study. In reply to a question Mr. Erickson stated: "What is the value which should be used for rate-making? The cost new plus going value plus necessary working capital. Depreciation should not be taken from the cost new since depreciation on amount set aside to keep the property and service intact is not amortization."

This paper was discussed at length by R. B. Brown, and it was voted to publish this in advance of the proceedings so that those present would have a chance to study and absorb it.

Over one hundred members and guests were registered and the meeting was most successful, notwithstanding the exceedingly bad weather.

Notes

The People's Gas Light & Coke Company of Chicago was well represented at the convention. Messrs. E. G. Cowdery, John Williamson, O. T. Knight, C. A. Luther, F. F. Cauley and John Zander were among those in attendance.

President B. F. Lyons was also elected president of the Wisconsin Electric Association.

The banquet was a great success. Over three hundred enjoyed the dinner. The entertainment was all that could be desired, as was evidenced by the frequent applause. Carl Asendorf made a very capable song leader. The speakers were excellent, the Hon. J. Adam Bede upheld his reputation as the wit of the House of Representatives, but through his whole talk ran a vein of good advice and sound logic.

H. H. Clark, the secretary of the Illinois Gas Association, was a visitor at the convention.

A conference was held on Part 4 of the Proposed National Gas Safety Code in R. B. Brown's office. In addition to Mr. Brown, the following gentlemen took part in the discussion: Messrs. Lyons, Butterworth, Cross, Haase, Kraft, a representative of the Railroad Commission and C. E. Reinicker for the Bureau of Standards.

Chicago Heights Adopts Group Block Rate with Proportionate Minimum Bill

The Chicago Heights Gas Company, of Chicago Heights, Ill., has installed Henry I. Lea's group block rate with proportionate minimum bill as follows:

	Gross per 1000 cu. ft.	Net per 1000 cu. ft.
Initial quantity.....	$1.20	$1.10
Secondary quantity....	0.90	0.80
All additional.....	0.60	0.50

Capacity required per hour.	Minimum bill per meter per month.	Initial quantity. Cu. ft.	Secondary quantity. Cu. ft.
0— 94 cu. ft....	$0.75	3700	3700
94—148 cu. ft....	0.90	4500	4500
148—218 cu. ft....	1.05	5100	5100
218—285 cu. ft....	1.10	5500	5500
285—486 cu. ft....	1.85	9100	9100
486—750 cu. ft....	2.85	13900	13900

This journal is indebted to V. M. Cutler, manager of the company, for the foregoing information.

Utilities Merger Awaits Commission Approval

It is understood that within a few days the up-State (New York) Public Service Commission will announce its approval of the plan by which the Long Island Lighting Company will merge all but one or two of the small lighting companies in Suffolk county. Under the plan the Long Island Lighting Company will issue $1,320,000 of securities with the proceeds of which it will purchase the Huntington Light & Power Company, the Huntington Gas Company, the South Shore Gas Company, the Suffolk Gas & Electric Company, the Suffolk Light, Heat & Power Company, the Sag Harbor Electric Light & Power Company and the North Shore Electric Light & Power Company.

These Gas-Heated Houses a Striking Illustration of Effectiveness of Baltimore Company's Efforts to Secure Such Business

PRACTICABILITY OF HOUSE HEATING BY GAS NOT LIMITED TO TERRITORIES WHERE MILD WINTER CONDITIONS ARE ASSURED

The Consolidated Gas, Electric Light & Power Company of Baltimore has a 35-cent rate for house heating. In addition to this it has made extensive studies towards securing the maximum heating efficiency from each cubit foot of gas burned. Upon this basis it has gone out hard for house heating business with but one end in view—the time when all the domestic heating in the city will be done by gas. Its efforts have proved gratifyingly successful, not only in the installation of equipment especially designed for gas, but in the adaptation of coal-burning equipment to gas.

Bituminous and Beehive Coal Shipments Decrease in February

According to a report prepared by C. E. Lesher of the United States Geological Survey, the decrease in shipments of bituminous coal in February, 1917, compared with January, 1917, was 15.5 per cent., and compared with February, 1916, was 9.4 per cent. The average number of cars of coal per working day was 23,531 in February, 1917, as against 24,620 in January, 1917, and 24,893 in February, 1916. The shipments in February were less than in January, which was to be expected because of the fewer working days. These statistics indicate that, except in Kentucky and Alabama, the daily rate of production was lower in February than in January, 1917, and considerably less than in February, 1916. The average daily loading on 23 roads in Pennsylvania, West Virginia, Virginia, Maryland, and Ohio was 7 per cent. less in February than in January, 1917, and on 13 roads west of the Mississippi was 19 per cent. less.

The shipments of beehive coke in February, 1917, showed a decrease of 18.9 per cent. compared with January, 1917, and a decrease of 20.1 per cent. compared with February, 1916.

New Names for Two Carolina Companies

The Goldsboro and New Bern Gas Companies that were recently sold under a receivership, were bought by W. M. Crane, 16 West Thirty-second Street, New York City. The names of the companies have been changed to the Goldsboro Gas & Fuel Company, Goldsboro, N. C., and the New Bern Gas & Fuel Company, New Bern, N. C. H. D. Wood has been made general manager of both concerns, with headquarters in New Bern, where he is actively in charge. E. C. Powell has been retained as superintendent of the Goldsboro property.

New Association in New England Holds First Meeting and Dinner

The newly organized Gas Sales Association of New England had its first meeting and dinner in the Boston City Club, on Friday evening, March 9. There were thirty-five members and guests present and the old gas men remarked about the unusual enthusiasm.

The Gas Sales Association has been organized with these three objects in view: (1) The development of the use of gas and the promulgation of the methods necessary for its sale; (2) the inducement and extension of more cordial and friendly relations between customers and producers of gas and gas appliances; (3) the furthering of co-operative relations between gas companies.

William Gould of Boston is governor and the following comprise the board of managers: W. T. Pease, manager of the Boston branch of the Ruud Manufacturing Company; George P. Smith, manager of the Old Colony Gas Company; M. E. Abbott, sales manager of the Weir Stove Company; F. A. Woodhead, manager Arlington Gas Light Company; William West, New England representative of General Gas Light Company; Roland Buckminster, sales manager Fall River Gas Works Company and Paul Webber of Boston. F. A. Woodhead of Arlington is chairman of the publicity committee.

Mr. Gould congratulated the association on the opportunities its meetings would afford for the presentation of constructive criticisms, constructive selling methods and constructive ideas. It would avoid, he said, everything like antagonism to methods of illumination other than gas, but it would work to arouse the public to the value of gas and to promote the sale of gas and gas appliances. Referring to the practice of regarding April, May and June as the best months, he proclaimed it the purpose of the association to consider all months good months for selling.

"All depends," he added, "on our getting the right mental attitude. We are going to give our members every bit of experience and knowledge that can be brought in. We want them to go into this propaganda seriously. We want to have scattered through New England as many live wires as possible to extend this gas business."

As an example of how the association proposed to help in the dissemination of news ideas, Mr. Gould exhibited a newly invented gas toaster.

Publicity Manager Woodhead dwelt on the necessity of combatting misrepresentations regarding gas that occasionally appeared in the newspapers. He deplored the prevailing lack of information among the public as to the value of gas and gas appliances, and said that the association had just sent out a statement showing the things which could be done with a cent's worth of gas.

N. C. G. A. Collecting Lighting Data—Gaining Co-operation of Architects

The N. C. G. A. has recently sent out two form-letters to the gas companies in the United States—one asking for information and data regarding gas lighting installations; the other requesting the plans that the companies are working on for securing co-operation with architects.

The questions for the letter entitled "To Help You Secure More Gas Lighting Business" are as follows:

Specific Data Desired

PHOTOGRAPHS OF GAS LIGHTING INSTALLATIONS (RESIDENTIAL, COMMERCIAL AND FACTORY).

NUMBER OF AND TYPES OF LAMPS IN EACH INSTALLATION.

TOTAL HOURLY CONSUMPTION OF LAMPS IN EACH INSTALLATION.

WHETHER ON MAINTENANCE, FREE OR CHARGED. IF CHARGED, WHAT IS THE BASIS OF CHARGE AND WHAT IS THE GENERAL MAINTENANCE PLAN UNDER WHICH YOU WORK?

WHAT LIGHTING EQUIPMENT WAS DISPLACED BY THE INSTALLATION?

WHAT WAS YOUR METHOD OF SECURING EACH INSTALLATION?

WERE THE LAMPS SOLD OUTRIGHT, ON RENTAL, OR ON AN INSTALLMENT PLAN? IF THE LATTER, WHAT WERE THE TERMS?

General Information Desired

WITH WHAT COMPETITION ARE YOU CONFRONTED IN SECURING LIGHTING BUSINESS?

DO YOU CONDUCT SPECIAL LIGHTING SALES CAMPAIGNS?

ARE YOU ENDEAVORING TO HOLD YOUR PRESENT AND SECURE NEW GAS LIGHTING BUSINESS?

WHAT SUGGESTIONS HAVE YOU TO OFFER FOR STIMULATING THE CONSUMERS' INTEREST IN GAS LIGHTING?

WHAT KIND OF GAS LIGHTING LITERATURE CAN YOU USE FOR GENERAL DISTRIBUTION?

ARE YOUR DISPLAY WINDOWS AND SHOW ROOMS LIGHTED AT NIGHT? KINDLY SEND US PHOTOGRAPHS OF EACH.

IN YOUR NEWSPAPER ADVERTISING, HOW MUCH SPACE DO YOU DEVOTE TO GAS LIGHTING?

ARE YOUR ADVERTISEMENTS ILLUSTRATED? IF NOT, WOULD YOU SUBSCRIBE FOR ELECTROTYPE SERVICE WHICH WOULD GIVE YOU ATTRACTIVE ILLUSTRATIONS FOR YOUR COPY?

For Securing the Co-operation of Architects

WHAT METHODS ARE BEING TAKEN BY YOUR COMPANY TO ESTABLISH FRIENDLY RELATIONS WITH ARCHITECTS AND TO OBTAIN THEIR CO-OPERATION IN FURTHERING THE USAGE OF GAS?

WHAT HAVE BEEN THE GENERAL RESULTS FROM SUCH METHODS?

WHAT IS THE PRINCIPAL DIFFICULTY YOU HAVE MET WITH IN SOLICITING THE CO-OPERATION OF ARCHITECTS?

IS THERE A CHAPTER OF THE ARCHITECTURAL LEAGUE IN YOUR CITY?

WHAT, IN YOUR OPINION, IS THE BEST WAY TO AROUSE ARCHITECTS' INTEREST IN OUR INDUSTRY, AND OBTAIN THEIR ACTIVE CO-OPERATION IN ADVOCATING GAS FOR LIGHTING AS WELL AS FOR FUEL PURPOSES?

Legislative Committee Rejects Gas Measures

The Massachusetts Legislative Committee on Public Lighting has given "leave to withdraw" to petitions for bills to value the property of the Boston Consolidated Gas Company and Boston Edison Electric Company, on facilitating the acquisition of municipal plants by towns and cities, and one providing that municipalities may build plants without acquiring existing corporation plants.

A bill which would require gas and electric companies to furnish more information to customers on computing meter charges is referred to the next General Court.

Leave to withdraw is also given on a bill to compel the Edison company to provide service to customers not located on existing service lines.

Various sweeping bills aiming at state ownership of gas plants have been thrown out by the committee.

MANAGER E. D. V. DICKEY, FREEPORT, ILL., GAS COMPANY, DRIVING FLOAT IN FLORAL PARADE

Gas Company Float Takes Second Prize

During a recent floral parade given in Freeport, Ill., a very attractive float was designed by the Freeport Gas Company and succeeded in capturing the second prize. E. D. V. Dickey, manager, is shown in the accompanying illustration at the wheel of the float. The decorations were fleur-de-lis on a white background.

Mr. Dickey has also been taking an active part in a recent campaign started in Freeport to raise the active membership of the Chamber of Commerce over the four hundred mark.

Gas Engineers and Officials Agree to Aid Government

Twenty-five leading engineers and executives of gas manufacturing companies in Massachusetts met in conference with the gas and electric light commission recently and agreed to offer their services to the United States War Department to aid in the manufacture of benzol and similar products which are used in making high explosives.

Gen. Morris Schaff, member of the gas and electric light commission and a graduate of West Point, discussed the evolution of warfare from the time of the rebellion.

"Warfare now is a battle of high explosives, a veritable downpour or storm of highly explosive shells," said Gen. Schaff. "This country, especially Massachusetts, is rich in products which make those high explosives. The best of the products, it is known, are benzol and those similar to it, and they are products made in the manufacture of coal gas. They have not been extracted, but well known methods of extracting those gases are in use in England and elsewhere.

It is probable that representatives of the organization, together with an inspector of the gas and electric light commission, will be sent to England to study the methods employed in the British Empire for the manufacture of explosives.

A committee to draft resolutions for presentation to the War Department advising the federal authorities of their readiness to help in case of war was appointed as follows: Albert M. Barnes of Cambridge, president of the Cambridge Gas Light Company; H. K. Morrison, manager of the Lynn Gas & Electric Company, and Dana D. Barnum of Worcester, president of the Worcester Gas Light Company.

Others present were Albert B. Tenney, president of the Fitchburg Gas & Electric Company and the Malden & Melrose Gas Light Company; James L. Richards, president of the Boston Consolidated Gas Company; Frederick P. Royce, president of the Fall River Gas Works Company; Col. Henry A. Hale, president of the Salem Gas Light Company; N. W. Gifford, director of the East Boston Gas Company; Oliver Prescott, president of the New Bedford Gas & Electric Light Company; John J. Kirkpatrick, manager of the Holyoke Gas & Electric Department; William L. Adam, president of the Pittsfield Coal & Gas Company; George S. Motley, president of the Lowell Gas Light Company; C. J. R. Humphreys, president of the Lawrence Gas Light Company, and representatives of other gas companies in Brockton, Charlestown and Taunton.

New Corporation Chartered in Baltimore

A charter has been granted by the State Tax Commission to the Porcelain Enamel & Manufacturing Company of Baltimore, a $1,500,000 corporation. The new company will have a connection with the Consolidated Gas Electric Light & Power Company, and its principal office will be in the new gas and electric building. John L. Bailey, an official of the electric company, will be resident agent of the corporation, and William A. Zimmerman, W. Graham Boyce and Walter H. Buck, the incorporators, will be the directors for the first year.

The charter authorizes the company to manufacture and deal in all articles of enamel, iron, steel, copper and wood and all products that are stamped or enameled.

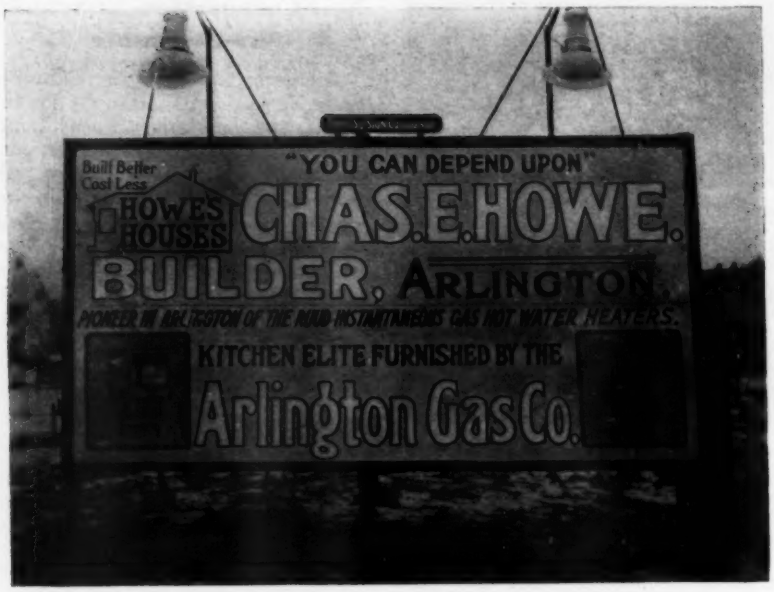
The new corporation will take over the plant and business of the Maryland Enamel & Sign Company, now located at Highlandtown. This concern has been doing the enameling for the Gas Appliance Company, which is one of the industries established in Baltimore through the activity of J. E. Aldred, chief factor in the gas company.

The directors of the new company are: J. M. Jones, of the Bethlehem Steel Company; John M. Dennis, president of the Union Trust Company; Edmund S. Dickey, of the Maryland Meter Company; Herbert A. Wagner, president of the Consolidated Gas Company; Harry W. Hunter, head of the Gas Appliance Company; John L. Bailey, treasurer of the Consolidated Gas Company, and Heinrich Turk. The officers are to be: John L. Bailey, chairman of the board; Heinrich Turk, president; Karl Turk, vice-president, and W. Graham Boyce, of the Union Trust Company, secretary-treasurer.

Manitowoc Gas Company Sold

The Manitowoc (Wis.) Gas Company has been sold to the C. A. Runyan interests with headquarters at Grand Haven, Mich., according to a recent announcement. The gas utility was capitalized at $200,000 and was owned largely by the estate of the late David Douglas of Eau Claire, Wis.

The Runyan interests control utilities in Wisconsin, Minnesota and Indiana.



SIGN BOARD ERECTED JOINTLY BY BUILDER AND GAS COMPANY

Co-operative Advertising Sign Features Gas Kitchen

An interesting method of advertising domestic appliances of the gas type is being employed at Arlington, Mass., where two sign-boards are erected adjacent to prominent streets bearing advertising matter supplied by a local builder and the gas company jointly. The signs are lighted at night by two arc lamps which are extinguished by automatic clocks at midnight.

Manager Woodhead, Mr. Howe, the builder, and Mr. Hallet of the Ruud Water Heater Company got together to mutual advantage. The builder contracted for 100 automatic heaters for installation during 1917. The company's interest in the case is obvious, in that the electric kitchens will use a considerable quantity of gas.

Lower Industrial Rates at Niles, Mich.

R. A. Fields, business manager of the Niles Gas Company has announced that hereafter a lower rate will be given to large consumers of gas in Niles, Mich.

At present there is one rate for all consumers and that it $1 per 1,000 cu. ft. of gas. To enable local manufacturers to compete with manufacturers in other towns the gas company has decided to give the following rates to local consumers:

First 10,000 cu. ft. per month at old rate of $1 per 1,000.

Second 10,000 cu. ft., 90 cents per 1,000 feet.

Third 10,000 cu. ft., 80 cents per 1,000 feet.

Next 70,000 cu. ft. used, 70 cents per 1,000 feet.

All over 100,000 cu. ft. used, 60 cents.

A uniform discount of 5 per cent. will be given on all gas used over 100,000 cu. ft. per month. With the lower rate and discount to all consumers on 100,000 cu. ft. per month the actual rate will be 57 cents per 1,000 cu. ft.

Lewiston's Gas Investigation will be Expensive

Objection to the mayor's mode of procedure in conducting an investigation of the gas situation in Lewiston, Maine, was recently voiced by I. L. Robbins, Republican candidate for that office at the next election, who stated that the investigation will cost the city upwards of $8,000. An expert and four clerks began work last September, at $40 per day. This service could have been performed by an accountant from the public utilities commission, without cost to the city, according to Mr. Robbins.

The rate of $3 per thousand feet at Calais, Maine, was recently reduced to $2, without resort to outside expert help, the commission's force making the investigation.

Mechanical Billing

The gas billing department of the Peoples Gas Light & Coke Company of Chicago, Ill., is a quiet and unobtrusive section of the organization that works so smoothly one is hardly conscious of it. Nevertheless, it performs a wonderfully useful work, the full benefit of which would be hard to compute in dollars and cents.

There are no longer any complaints from customers of indistinct or unreadable figures. Bookkeepers can rely on the accuracy of the deductions. It is very rarely the case that meter statements are incorrectly copied, and generally happens only when breaking in a new operator.

During the year 1916, these young ladies handled nearly eight million bills. The best total for any one day was thirty-six thousand five hundred and seventy-five.

The record of seven operators who put in a full year on the machine is as follows:

	Average per day for the year.	Record day.
Julia Hartnett.....	2,726	4,600
Hattie Platte.....	2,657	3,800
Alice Byrnes	2,479	3,625
Celeste Fitzgerald.....	2,454	3,300
Loretta Sullivan	2,424	3,325
Edna Falconer	2,269	3,050
Anna Kelly	2,250	3,125

Company Managers Discuss Handling of Appliances

That lighting companies should advance the price of appliances, taking the present opportunity offered by the general tendency toward higher prices, was the sentiment expressed at a convention of electrical men in Boston recently. The too common practice of selling domestic appliances below cost in order to introduce new uses for electricity has been in obvious violation of economic laws, and is a practice that should be abandoned by all companies serving their communities with light and power.

At the convention referred to, a reliable party stated that his company is selling gas appliances at 65 per cent. over cost price, the selling prices being considerably higher than formerly. No diminution in the volume of sales is noted, however.

Bernard Webber, of the Athol (Mass.) Gas & Electric Company, held that electric lighting companies should co-operate with independent dealers in appliances, selling to the latter at prices that would show a

small profit to themselves because of the quantity discounts which the lighting company is able to procure. He pointed out that gas companies are trying to get department stores out of the gas appliance business. It was predicted that if lighting companies ceased to sell appliances the latter would be handled by irresponsible dealers who cared little for the quality of the goods.

Societies and Associations

THE ILLUMINATING ENGINEERING SOCIETY, Chicago section, held a meeting Friday, March 16, in the Edison Building, Clark Street, Chicago. James R. Cravath, electrical illuminating engineer, presented a paper with demonstrations on the "Headlite Glare Problem."

THE PENNSYLVANIA GAS ASSOCIATION will hold its ninth annual meeting at the Hotel Berkshire, Reading, Pa., April 11, 12 and 13. Reservation postals for hotel accommodations have been distributed by L. R. Dutton, secretary of the society, and some of the accommodation arrangements are given below:

HEADQUARTERS:

THE BERKSHIRE, EUROPEAN PLAN

Room with bath, 1 in a room	$2.50 up
Room with bath, 2 in a room	4.00 up
Room without bath, 1 in a room	1.50 up
Room without bath, 2 in a room	3.00 up

AMERICAN HOUSE

American Plan:	
Room with bath	$3.50 to $4.00
Room without bath	3.00 to 3.50
European Plan:	
Room with bath	1.50 to 2.50
Room without bath	1.25 to 2.00

MANSION HOUSE

American Plan:	
Room with bath	3.50 to 4.00
Room without bath	3.00 to 3.50
European Plan:	
Room with bath	1.50 to 2.50
Room without bath	1.25 to 2.00

HOTEL PENN

American Plan:	
Room with bath	3.00 to 3.50
Room without bath	2.00 to 2.50

THE MICHIGAN GAS ASSOCIATION has decided at a recent meeting of their executive committee to hold the next meeting of the M. G. A. at Hotel Pantlind, Grand Rapids, Sept. 6 and 7.

Personal Notes

E. R. TREVERTON, who for the past 10 years has been identified with the lighting industry, has become a general "all 'round" man for the Holophane Glass Company, Inc., with offices at 340 Madison Avenue, New York. The association is especially significant, as the Holophane company is known for its progressive spirit along the lines of the scientific, as well as artistic development in lighting. Mr. Treverton possesses a broad knowledge of engineering and trade conditions in the field, as well as a wide acquaintance with those prominent in the work. For three years Mr. Treverton was managing editor of the *Lighting Journal*, and his work as a writer and also as a speaker has been recognized as singularly direct and clear. Treverton is a Lehigh man, class '07. After getting a fundamental training in Central Station work with the cadet school in the Doherty organization of Denver he joined the engineering department of the Westinghouse Electric & Manufacturing Company at East Pittsburgh, designing and engineering for its various shops the first really scientific industrial lighting in this country. From 1910 for three years he was with the illuminating engineering department of the Westinghouse Lamp Company, later becoming chief engineer of that department.

NORMAN LONGBOTTHAM, former superintendent of the local branch of the Connecticut Power Company, is about to make a change and on April 1 will take up new duties with the Winsted Gas Company, Winsted Conn.

F. A. OTTO, who for the past five years has been general superintendent of the St. Paul Gas Light & Edison Company, has been selected by Ludwig Kemper, manager of the Minnesota Gas & Electric Company, as new manager for the plant at Albert Lea, Minn.

L. H. HARTSOCK has been transferred from the management of the Colusa District to that of the Nevada District of the Pacific Gas & Electric Company, succeeding the late John Werry. Ralph A. Aver, assistant manager of the Nevada District, has taken Mr. Hartsock's place in Colusa.

A. H. R. JACKSON, formerly connected with the Oskaloosa Traction & Light Company, Oskaloosa, Ia., resigned his position and was superseded by J. H. Porter as general superintendent.

DR. GEORGE S. HESSENBRUCH, consulting engineer, with offices in the Victoria Building, St. Louis, Mo., has been informed recently of his election to the membership in the Laureat of the Societe Academique of Paris, one of the most exclusive scientific societies of France. Dr. Hessenbruch was presented with the society's gold medal and as a Laureat is entitled to wear the decoration conferred, the medial d'or au cravat. The honor was conferred in recognition of his research work in the field of coal tar by-products. Dr. Hessenbruch was formerly assistant chief engineer of the power plants of the Union Electric Light & Power Company of St. Louis, and superitnendent of works of the St. Louis County Gas Company at Webster Groves, Mo. He severed his connections with these concerns during 1916, as was noted in the *American Gas Light Journal*, issue of Sept. 18, and opened offices in the Victoria Building, St. Louis, as consulting engineer. He has become recognized as authority on coal tar by-products and has studied and practised extensively in Europe.

BURTON SMITH of the Portland Gas Light Company, Portland, Me., has recently been elected unanimously as treasurer of the Portland Chamber of Commerce.

THE BACHARACH INDUSTRIAL INSTRUMENT COMPANY of Pittsburgh, Pa., manufacturers of gas meters, pressure and draft recorders, CO_2 indicators and thermometers, have recently moved from 14 Wood Street to 422 First Avenue, Pittsburgh, Pa.

C. B. DAY, manager of the local lighting utility companies at Northampton, Mass., completed 25 years of service on Feb. 8 last. Mr. Day is held in high esteem, not only by his associates, but also by the people of the communities which his companies serve.

NOBLE L. CLAY, who for five years has been general manager of the Carolina Power & Light Company, has recently been made local manager and superintendent of this company at Raleigh and Durham, N. C. Mr. Clay was previously assistant superintendent of the Virginia Railway & Power Company, gas division, at Norfolk, Va.

Construction Notes

Nashua, N. H., Has New Generating Plant

The Nashua Light, Heat & Power Company has added a new water-gas generating outfit at the manufacturing plant located near Nashua Union station. The new generator is located in the water-gas house. It is a duplicate outfit of the former water-gas generator, and will not be used except in case of the breakdown of the old outfit.

For the past three weeks the United Gas Improvement Company of Philadelphia, has been installing the outfit and the work is about completed. The reasons for the installation were the increase in business and the scarcity of oil and coal for the manufacture of gas.

If necessary the output of the plant can be doubled with the new generator.

New Pipe Line to Claremore, Okla.

The laying of the gas main from the Spencer Stephens field, about four miles west of Claremore to the corporate limits of Claremore, Okla., will start this week. This line will be constructed by J. Truman Nixon and F. L. Townsend, of Tulsa, while the actual work will be superintended by Earl Riley, of Collinsville. It will be a 4-in. oxy-acetylene weld pipe.

The line is to furnish gas for the Howard brick plant, the People's Ice & Cold Storage Company and the Claremore Light & Water Department, besides other concerns which will later attach to the main. The supply of gas comes from four wells on the Stephens place, ranging in capacity from three to six million feet.

Land Leased for Chicago Plant

Record was made recently of a deed whereby the People's Gas Light & Coke Company has leased from the sanitary district a tract of 27.38 acres extending along the north bank of the drainage canal, just east of the city limits and the right of way of the Chicago & Western Indiana Railroad, for a period of ninety-nine years, from Feb. 1, 1916, at an aggregate rental of $640,000.

FOUNDATION WORK ON SAN FRANCISCO BUILDING

This property adjoins other holdings held by the gas company, which, taken in the aggregate, will form the site of the $15,000,000 plant proposed by the company in the event of obtaining a satisfactory franchise, according to reports published some time ago.

New Equipment at Fayetteville, N. C.

Much new machinery and equipment is being installed throughout the entire plant at Fayetteville, N. C., according to the information received from A. R. Moffitt, manager.

J. H. Gautier & Company of Jersey City, N. J., is erecting for this company one new bench of sixes and refilling one bench of fives. A No. 3 Roots Exhauster has also just been installed, which replaces the No. 2 which has been used previously.

New boilers, pumps and other equipment are being installed, and the work on a considerable amount of new main is expected to be started within the next thirty days.

FORESTVILLE, CONN.—The Bristol & Plainville Tramway Company is preparing to lay gas mains on Broad Street terrace, Kenney Street and Central Avenue, south of Broad Street.

WORCESTER, MASS.—The Worcester Gas Light Company is planning to build a generator house on Quinsigamond Avenue, at a cost of about $9,000.

Construction of New Sales Company Building

Building construction for the Sam P. Hamilton, Inc., Gas & Electric Sales Company started the latter part of January at Powell and Sutter Streets, San Francisco, adjoining headquarters of Pacific Gas and Electric Company. Site is in the heart of San Francisco's retail section on the Rudolph Spreckles $500,000 property.

Building after plans and designs by Mr. Hamilton has 115 ft. show window frontage on Sutter Street and 137 ft. on Powell Street, affording every facility for display and shop purposes.

The company will make a comprehensive showing of domestic, industrial and house heating gas appliances, as well as electric lighting and heating devices and will be conducted along the general lines of the Gas & Electric Appliance Company, with which company Mr. Hamilton was formerly associated but on a larger scale and operating over the territory covered by the Pacific Gas & Electric Company.

Associated with Mr. Hamilton and his directorate are prominent gas and electric men. Paid-in capital is $100,000.

Mr. Hamilton leaves May 1 for the East on a general inspection of the larger appliance stores and power companies' sales departments and to complete agency arrangements. Temporary address of the company, 435 Powell Street, San Francisco.